REVISION HISTORY BG3R CHASSIS

MODEL

KV-AR29M31

PART NO.: 9-872-335-01

NO.	SUFFIX	DATE	SUPPL. / CORR	DESCRIPTION
1	-01	2002/9	--	1st. Issue

Self Diagnosis
Supported model

SERVICE MANUAL

BG3R CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-AR29M31	RM-995	Oceania	SCC-U44H-A				

TRINITRON® COLOR TV

SONY®

SPECIFICATIONS

				Note
Power requirements	220-240 V AC, 50/60Hz			
Power consumption (W)	Indicated on the rear of the TV			
Television system	B/G, I, D/K, M			
Color system	PAL, PAL 60, SECAM, NTSC3.58, NTSC4.43			
Stereo/Bilingual System	NICAM Stereo/Bilingual B/G, I, A2 Stereo/Bilingual B/G			
Teletext language	English, Arabic, French			
Channel coverage				
B/G	VHF: E2 to E12 / UHF: E21 to E69 CATV: S01 to S03, S1 to S41			
I	UHF: B21 to B68 / CATV: S01 to S03, S1 to S41			
D/K	VHF: C1 to C12, R1 to R12 UHF: C13 to C57, R21 to R60 CATV: S01 to S03, S1 to S41, Z1 to Z39			
M	VHF: A2 to A13 / UHF: A14 to A79 CATV: A-8 to A-2, A to W+4, W+6 to W+84			
(Antenna)	75-ohm external terminal			
Audio output (Speaker)	8W + 8W			
Number of terminal				
Video	Input: 4*	Output: 1	* Three input lines available	Phone jacks; 1 Vp-p, 75 ohms
♪ (Audio)	Input: 4*	Output: 1	* Three input lines available	Phone jacks; 500 mVrms
(S Video)	Input : 2			Y: 1 Vp-p, 75 ohms unbalanced, sync negative C: 0.286 Vp-p, 75 ohms
(Component Video)	Input : 1			Phono jacks: Y: 1 Vp-p, 75 ohms sync negative C_B: 0.7 Vp-p, 75 ohms C_R: 0.7 Vp-p, 75 ohms Audio: 500mVrms
(Headphone)	Output: 1			Stereo minijack
Picture tube	29 in			
Tube size (cm)	72			measured diagonally
Screen size (cm)	68			measured diagonally
Dimension (w/h/d,mm)	765 × 578 × 502			
Mass (kg)	49			

Design and specifications are subject to change without notice.

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER lamp will automatically begin to flash.
The number of times the lamp flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER lamp flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

1. DIAGNOSTIC TEST INDICATORS

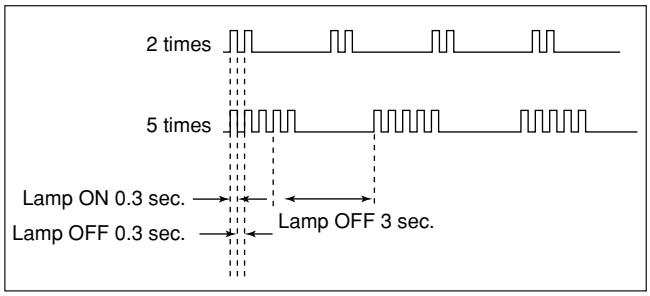
When an errors occurs, the STANDBY/TIMER lamp will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the lamp will identify the first of the problem areas.

Result for all of the following diagnostic items are displayed on screen. No error has occured if the screen displays a "0".

Diagnostic Item Description	No. of times STANDBY/TIMER lamp flashes	Self-diagnostic display/Diagnostic result	Probable Cause Location	Detected Symptoms
• Power does not turn on	Does not light	—	• Power cord is not plugged in. • Fuse is burned out F4601 (F)	• Power does not come on. • No power is supplied to the TV. • AC power supply is faulty.
• +B overcurrent (OCP) or overvoltage (OVP) • Vertical deflection stopped • Horizontal deflection overdrive	2 times	002:000 or 002:001~255 003:001~255 004:001~255 at the same time	• H.OUT Q511 is shorted. (A board) • Q701, Q702, Q703 is shorted (C6 board) • -13V is not supplied. (A board) • IC 503 faulty (A board)	• Power does not come on. • Load on power line is shorted. • Has entered standby state after horizontal raster. • Vertical deflection pulse is stopped. • Power line is shorted or power supply is stopped.
• White balance failure (no PICTURE)	5 times	005:000 or 005:001~225	• G2 is improperly adjusted. (Note 2) • CRT problem. • R(Q703), G(Q702) or B(Q701) out is faulty (C6 board) • IC301 is faulty. (A board) • No connection A board to C6 board.	• No raster is generated. • CRT cathode current detection reference pulse output is small.
• Micro reset	—	101:00 or 101:001~225	• Discharge CRT (C6 Board) • Static discharge • External noise	• Power is shut down shortly, after this return back to normal. • Detect Micro latch up.

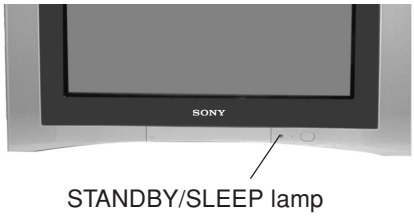
Note 1: If a + B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously.
The symptom that is diagnosed first by the microcontroller is displayed on the screen.
Note 2: Refer to screen (G2) Adjustment in section 3-4 of this manual.
* R(Q703), G(Q702) or B(Q701) out is faulty (C6 board).

2. DISPLAY OF STANDBY/TIMER LIGHT FLASH COUNT



Diagnostic Item	Flash Count*
+B overcurrent/overvoltage Vertical deflection stopped	2 times
White balance failure	5 times

* One flash count is not used for self-diagnostic.



STANDBY/SLEEP lamp

3. STOPPING THE STANDBY/TIMER FLASH

Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER lamp from flashing.

4. SELF-DIAGNOSTIC SCREEN DIPLAY

For errors with symptoms such as “power sometimes shuts off” or “screen sometimes goes out” that cannot be confirmed, it is possible to bring up past occurances of failure for confirmation on the screen:

[To Bring Up Screen Test]

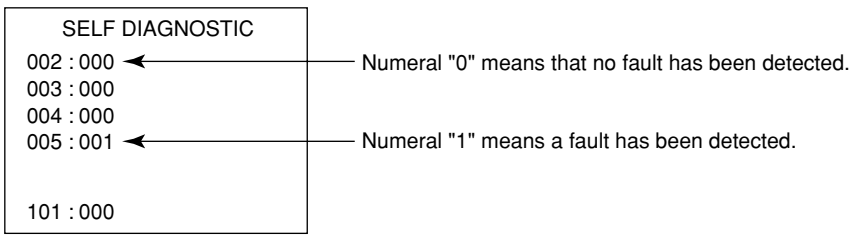
In standby mode, press buttons on the remote commander sequentially in rapid succession as shown below:

Screen display ➡ channel 5 ➡ Sound volume - ➡ Power ON

⇧

Note that this differs from entering the service mode (mode volume +).

Self-Diagnosis screen display


SELF DIAGNOSTIC
002 : 000
003 : 000
004 : 000
005 : 001
101 : 000
Numeral "0" means that no fault has been detected.
Numeral "1" means a fault has been detected.

5. HANDLING OF SELF-DIAGNOSTIC SCREEN DISPLAY

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to “0”.

Unless the result display is cleared to “0”, the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

[Clearing the result display]

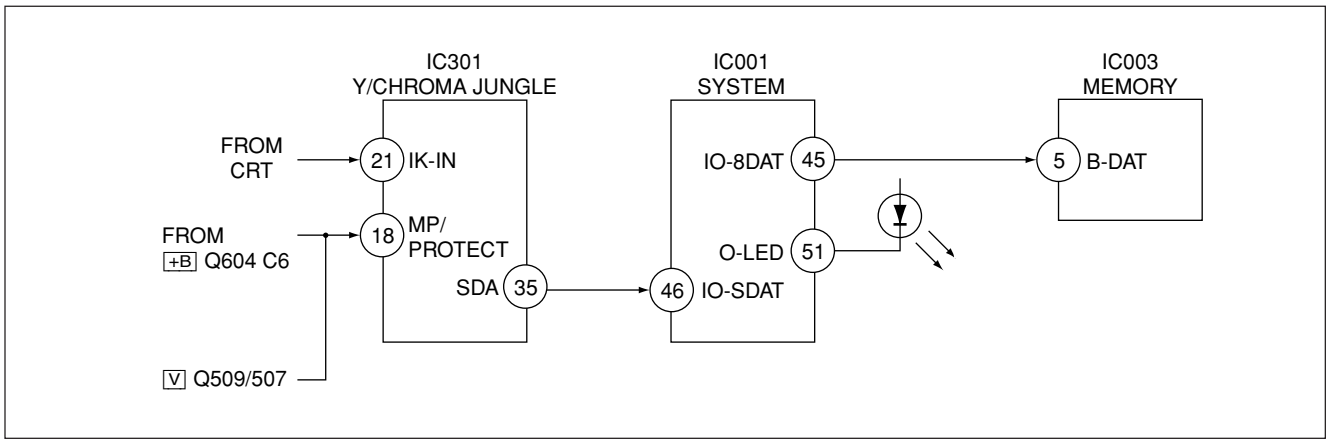
To clear the result display to “0”, press buttons on the remote commander sequentially as shown below when the diagnostic screen is being displayed.

Channel [8] ➡ 0

[Quitting Self-diagnostic screen]

To quit the entire self-diagnostic screen, turn off the power switch on the remote commander or the main unit.

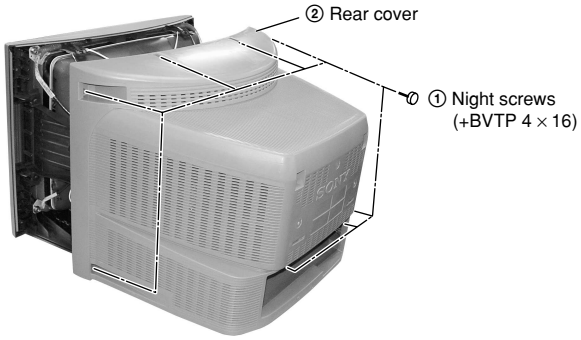
6. SELF-DIANOSTIC CIRCUIT



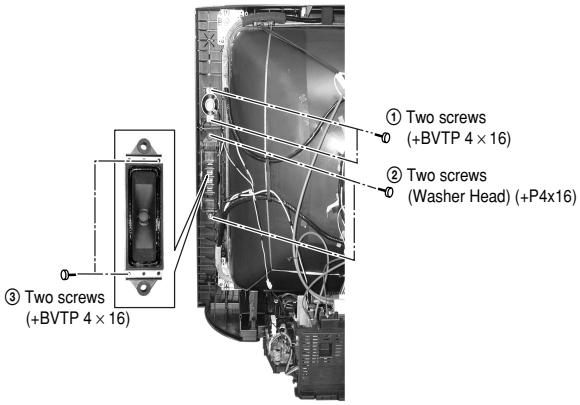
+B overcurrent (OCP)	Occurs when an overcurrent on the +B(135) line is detected by Q604. If Q604 go to ON and the voltage to pin 18 of IC301 should go down when V.SYNC is more than seven verticals in a period, the unit will automatically turn off.
Vertical deflection stopped	Occurs when an absence of the vertical deflection pulse is detected by Q509 and IC001 shut down the power supply.
Vertical deflection overcurrent	Occurs when an overcurrent on V drive line is detected by Q507. Power supply will be shut down when detect this by IC001.
White balance failure	If the RGB levels* do not balance or become low level within 5 seconds, this error will be detected by IC301. TV will stay on, but there will be no picture. * (Refers to the RGB levels of the AKB detection Ref pulse that detects IK.)

SECTION 1
DISASSEMBLY

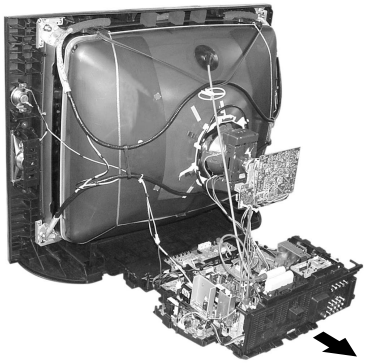
1-1. REAR COVER REMOVAL



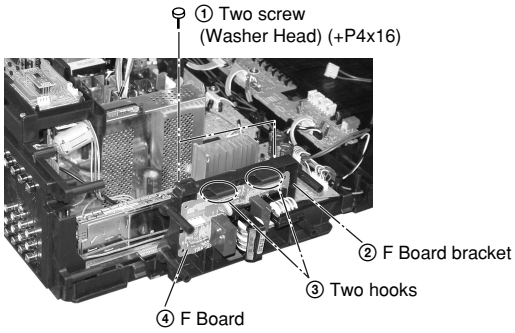
1-2. SPEAKER REMOVAL



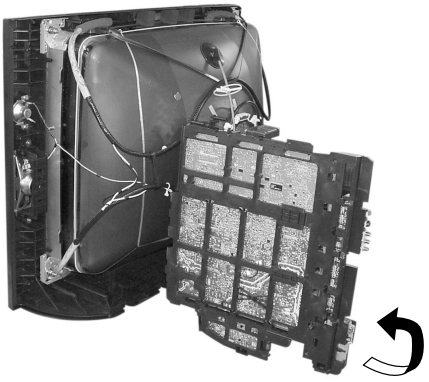
1-3. CHASSIS ASSY REMOVAL



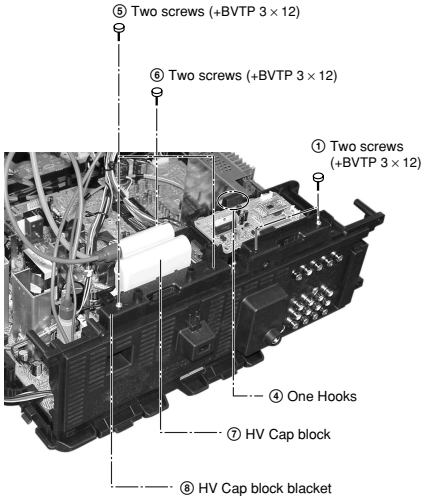
1-4. F BOARD REMOVAL



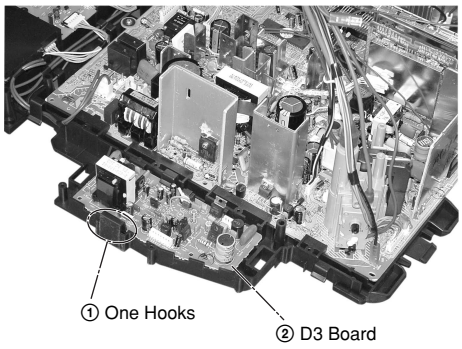
1-5. SERVICE POSITION



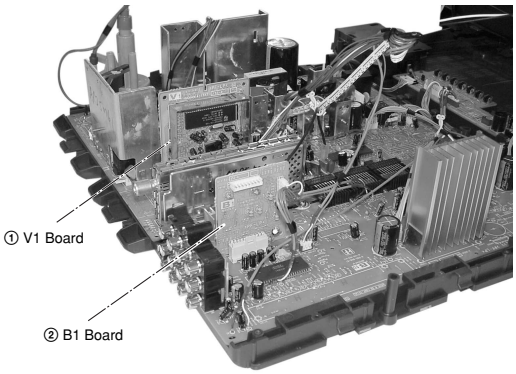
1-6. HV CAP BLOCK



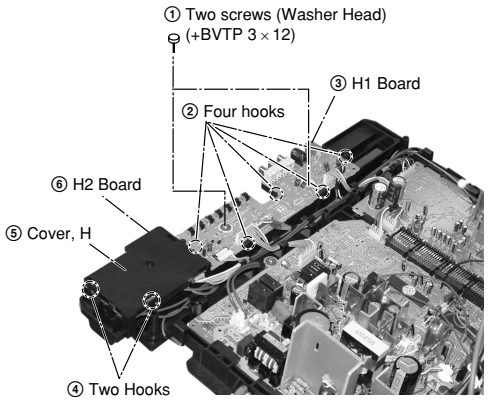
1-7. D3 BOARD REMOVAL



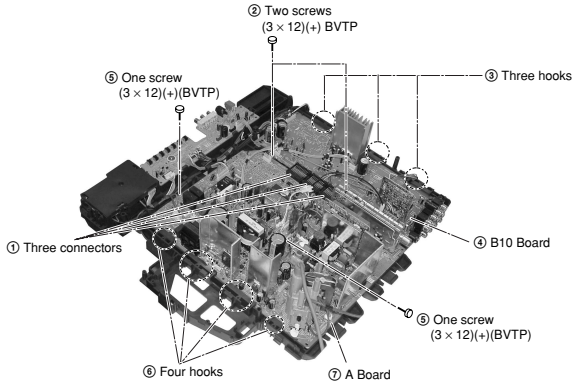
1-8. B1 AND V1 BOARDS REMOVAL



1-9. H1 AND H2 BOARDS REMOVAL



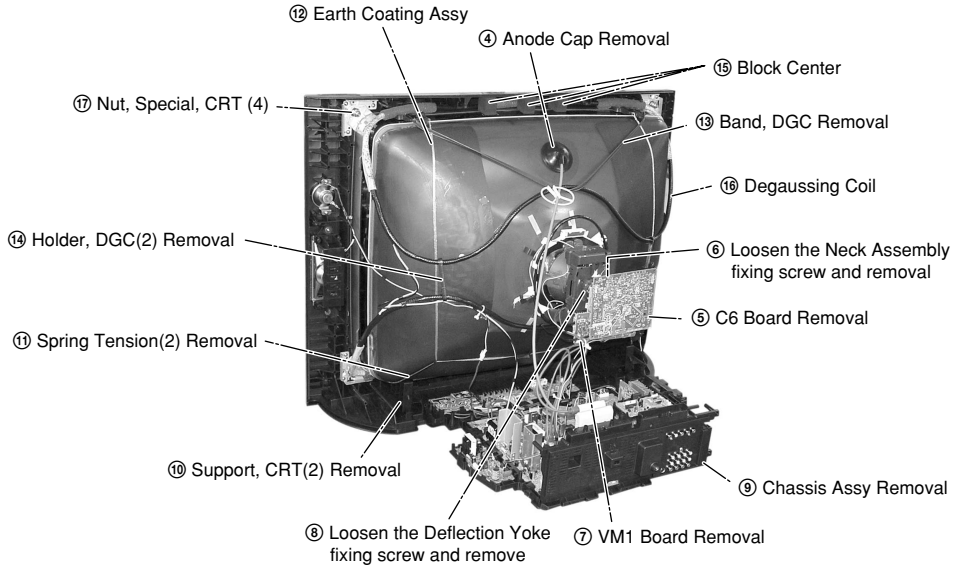
1-10. A AND B10 BOARDS REMOVAL



1-11. PICTURE TUBE REMOVAL

Note:
- The picture tube is upside-down and the position for the anode cap and tension springs are changed accordingly.
- Please make sure the TV set is not in standing posotion before removing necessary CRT support located on bottom right and left.

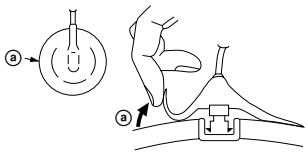
1) Place the TV set with the CRT face down on a cushion jig.
2) Removal the rear cover.
3) Unplug all interconnecting leads from the Deflection yoke, Neck assy, Degaussing Coil and CRT grounding strap.


⑫ Earth Coating Assy
④ Anode Cap Removal
⑮ Block Center
⑰ Nut, Special, CRT (4)
⑬ Band, DGC Removal
⑯ Degaussing Coil
⑭ Holder, DGC(2) Removal
⑥ Loosen the Neck Assembly fixing screw and removal
⑤ C6 Board Removal
⑪ Spring Tension(2) Removal
⑩ Support, CRT(2) Removal
⑨ Chassis Assy Removal
⑧ Loosen the Deflection Yoke fixing screw and remove
⑦ VM1 Board Removal

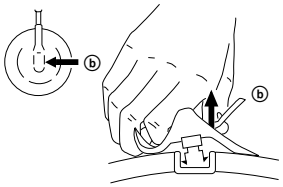
• REMOVAL OF ANODE-CAP

Note:
- After removing the anode, short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT.

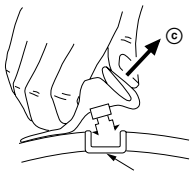
- **REMOVING PROCEDURES**



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

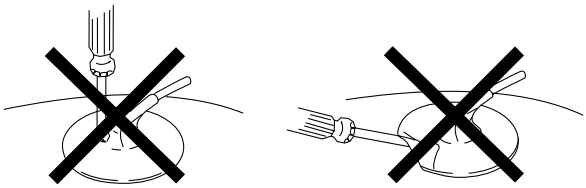


anode button

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ.

- **HOW TO HANDLE AN ANODE-CAP**

① Do not damage the surface of anode-caps with sharp shaped objects.
② Do not press the rubber too hard so as not to damage the inside of anode-cap.
A metal fitting called the shatter-hook terminal is built into the rubber.
③ Do not turn the foot of rubber over too hard.
The shatter-hook terminal will stick out or damage the rubber.



SECTION 2
ADVANCE OPERATION

2-1. "RESET" FUNCTION

1. Purpose

If a customer faces some setting problem that cannot be solved, using the "RESET" function some items will be reset to its original setting (shipment condition)

2. How to Operate

The way to access to the "RESET" Function:-

a) By pressing "MENU" button or "SELECT" button (for non-menu models) on the Front Key Input and hold it down for 5 seconds.

3. Subsequent of Operation

Sequential to the resetting operation (either methods being used in No. 2), TV set would shut down once and automatically turn on again. The power-off duration is expected to be about 500msec. An OSD message, "RESET" tentatively will be displayed for 10 sec after IK status gets stable.
As a result, some items will be reset to an initial condition (shipment condition) wheareas some other remains at the last selection by user.

Items that remains at the last selection by user

Channel No., Favourite CH Setup, PIC rotation, OSD Language, Fine tuning, TV System, Skip

Reset Items

Video input	RF	Antenna sensitivity	HIGH*
Volume	30	Stereo mode	STEREO
Picture mode	DYNAMIC	Bilingual mode	MAIN*
PICSI		High-deviation mode	AUTO
Sound mode	DYNAMIC	Child lock	OFF*
Surround mode	OFF	Wide mode	OFF
Favourite CH mode	AUTO	Game mode	OFF
Multi Picture (PIP)	OFF	Sleep timer	OFF
PIP position	Bottom Right	Wake-up timer	OFF
OSD recall	OFF	Sound muting	OFF
Antenna sensitivity	OFF		

*= only when in RF mode

SECTION 3
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switches should be set as follows unless otherwise noted:

PICTURE control ..... normal

BRIGHTNESS control ..... normal

Perform the adjustments in the following order :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.

1. Pattern Generator
2. Degausser
3. Oscilloscope

. . . . . .

Preparation :

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input a white signal with the pattern generator.
   Contrast } normal
   Brightness }
2. Position neck assy as shown in Fig3-2.
3. Set the pattern generator raster signal to a green raster.
4. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side. (See Figures 3-1 through 3-4.)
5. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 3-2.)
6. Switch the raster signal to blue, then to red and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Figure 3-5.)

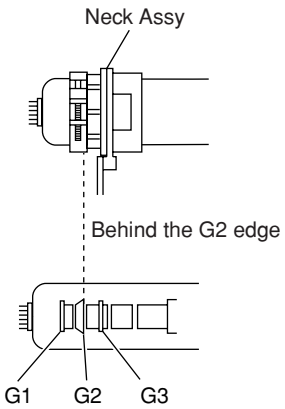


Fig. 3-1

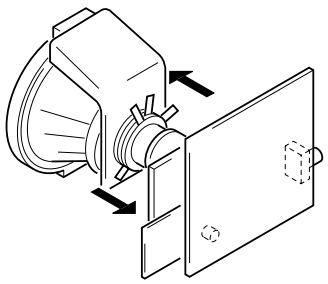


Fig. 3-2

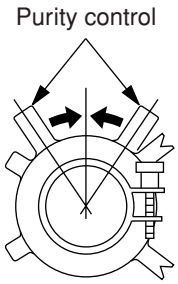


Fig. 3-3

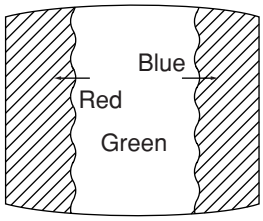


Fig. 3-4

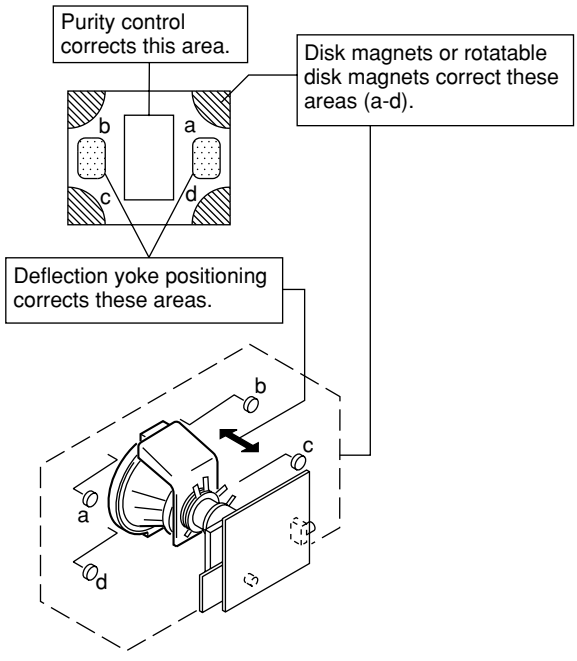


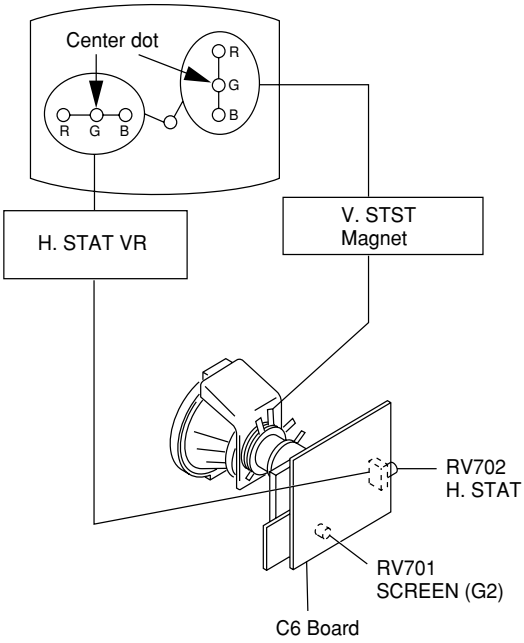
Fig. 3-5

3-2. CONVERGENCE

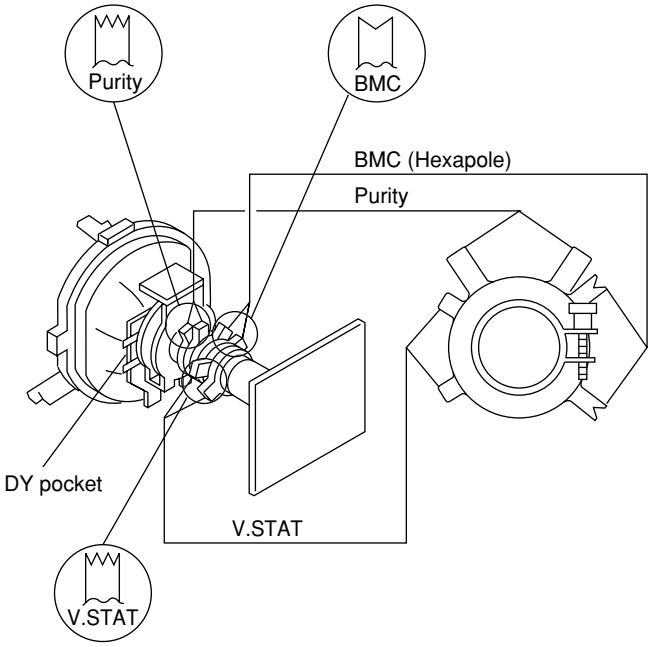
Preparation :

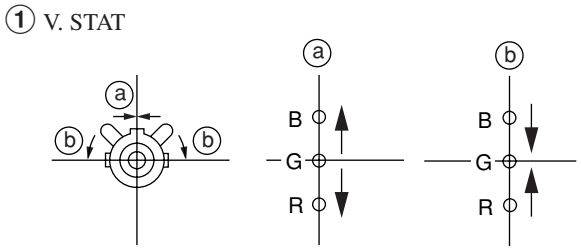
- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Receive dot/hatch signal.
- Pic mode: Personal (Pic 90%, Brightness 50%, Colour 50 %, Hue 50%, Sharpness 50%).

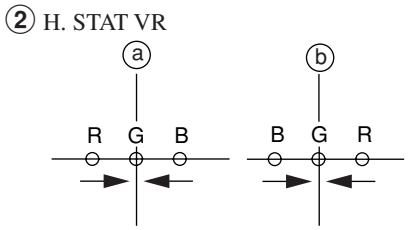
(1) Horizontal and Vertical Static Convergence

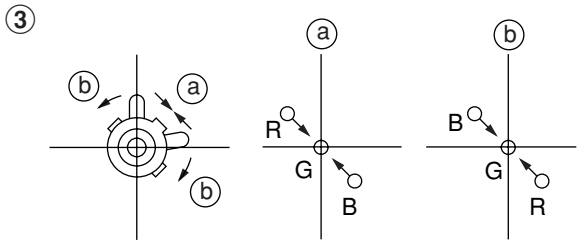


1. (Moving horizontally), adjust the H.STAT control so that the red, green and blue dots are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green and blue dots are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green and blue dots together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other, so be sure to perform adjustments while tracking.)



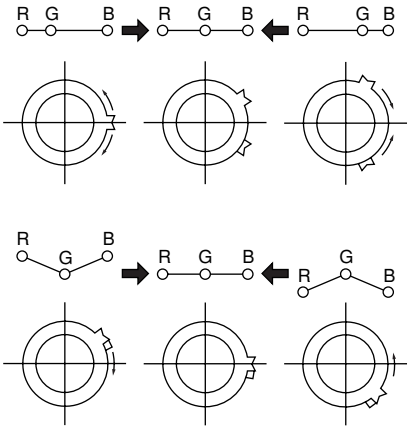


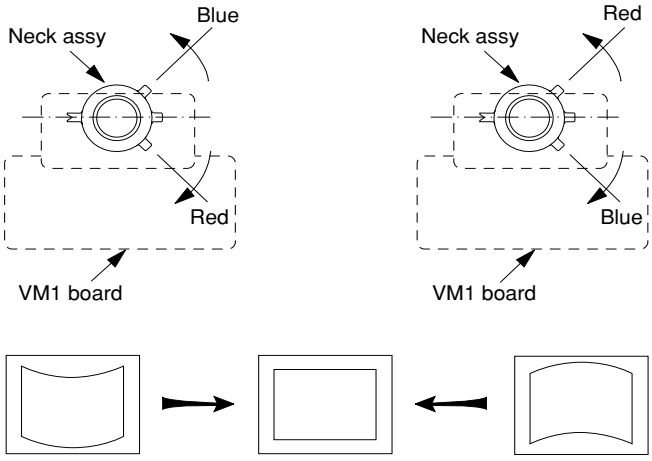




④ BMC (Hexapole) Magnet.

If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.





⑤ Y separation axis correction magnet adjustment.

1. Receive the cross-hatch signal and adjust [PICTURE] to [MIN] and [BRIGHTNESS] to [STANDARD] .
2. Adjust the Y separation axis correction magnet on the neck assembly so that the horizontal lines at the top and bottom of the screen are straight.

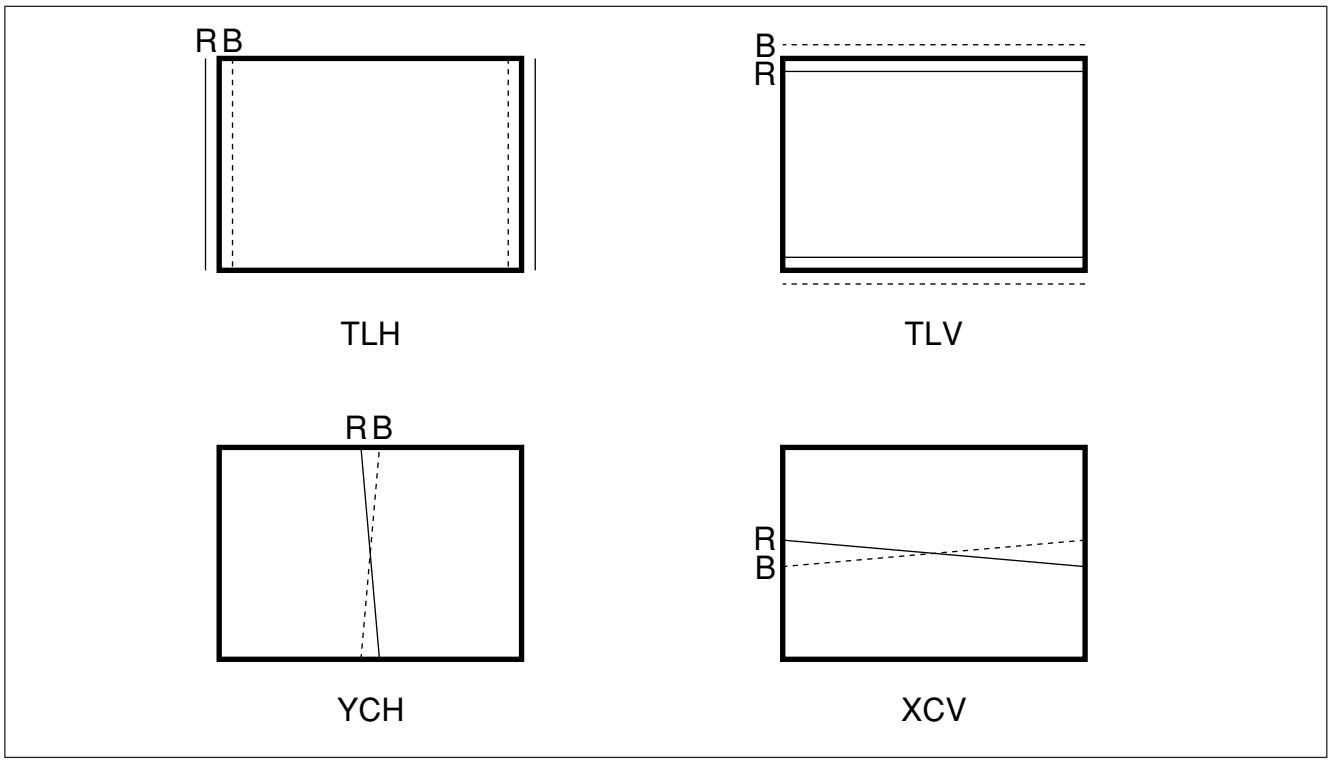
Note

1. The Red and Blue magnets should be equally far from the horizontal center line.
2. Do not separate the Red and Blue magnets too far. (Less than 8 mm)

(2) Dynamic Convergence Adjustment

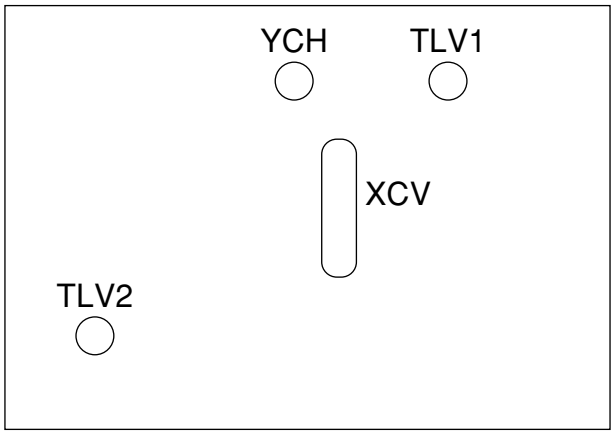
Preparation:

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence

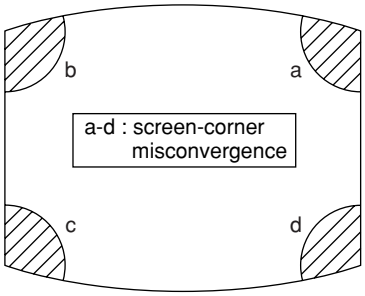


TLV	Rotate	TLV-2	VOL (29”, 34”) on DY
XCV	Rotate	XCV	Adj core on DY
YCH	Rotate	YCH	VOL on DY
TLH	Insert	TLH	Correction Plate to DY Pocket (Left or Right)

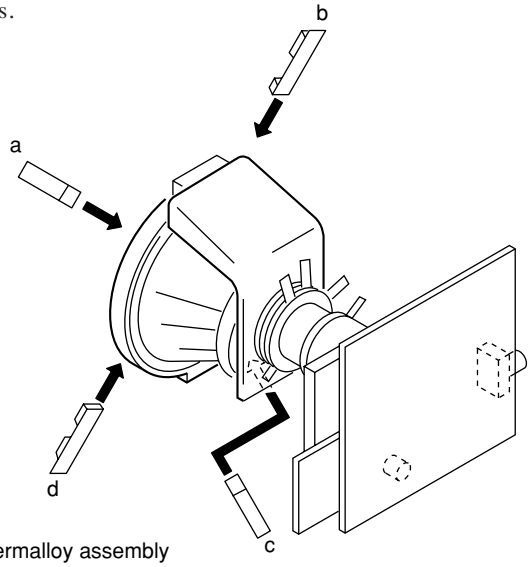
ON DY:



(3) Screen-corner Convergence



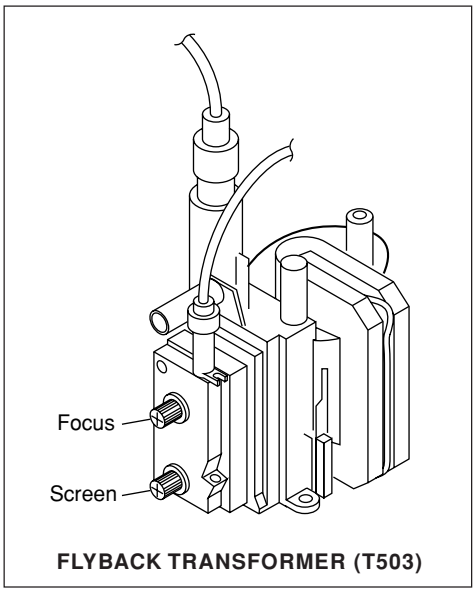
Fix a Permalloy assy corresponding to the misconverged areas.



Permalloy assembly

3-3. FOCUS ADJUSTMENT

FOCUS adjustment should be completed before W/B adjustment.



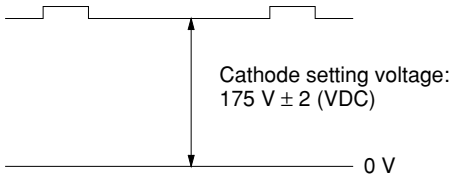
FLYBACK TRANSFORMER (T503)

1. Receive digital monoscope pattern.
2. Set "Picture Mode" to "Standard".
3. Set S2801 to mechanical center position.
4. Adjust focus VR so that the center of the screen becomes just focus.
5. Adjust S2801 when corner focus is unbalance is right and left.
6. Change the receiving signal to white pattern blue back.
7. Confirm Magenta ring is not noticable. Incase magneta ring is obvious, reset S2801 to mechanical center position and then adjust FOCUS VR to balance between MAGENTA RING and FOCUS.

3-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

1. G2 (SCREEN) ADJUSTMENT

1) Set the PICTURE to normal.
2) Put to VIDEO input mode without signals.
3) Connect R, G and B of the C6 board cathode to the oscilloscope.
4) Adjust BRIGHTNESS to obtain the cathode voltage to the value below.
5) Adjust G2 (screen) on the FBT until picture shows the point before cut off.

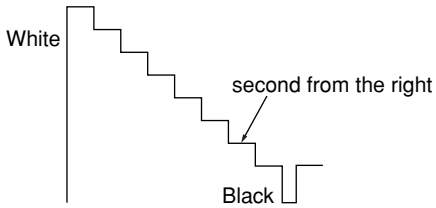


2. WHITE BALANCE ADJUSTMENT

1) Set to Service Mode (Refer Section 4-1: ADJUSTMENTS WITH COMMANDER).
2) Input white raster signal.
3) Set the PICTURE to minimum.
4) Select GCT (WHB 4) and BCT (WHB 5) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
5) Set the PICTURE to maximum.
6) Select GDR (WHB 1) and BDR (WHB 2) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
7) Write into the memory by pressing [MUTING] then [0].

3. SUB BRIGHT ADJUSTMENT

1) Set to service mode.
2) Input a staircase signal of black to white from the pattern generator.
3) BRIGHTNESS .... 50%.
   PICTURE ..... MINIMUM
4) Select SBR (WHB7) with [1] and [4], and adjust SBR (WHB7) level with [3] and [6] so that the second stripe from the right is dimly lit.



SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ADJUSTMENTS WITH COMMANDER

Service adjustments to this model can be performed using the supplied Remote Commander RM-995.

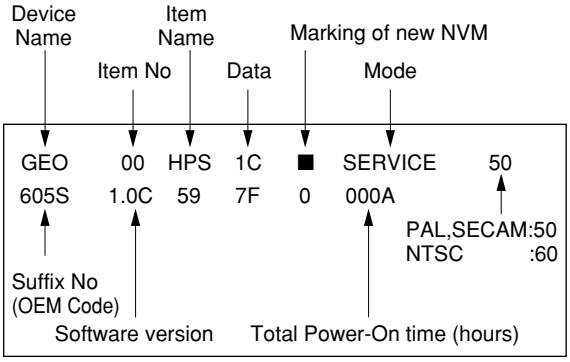
a. ENTERING SERVICE MODE

With the unit on standby

→ [DISPLAY] → [5] → [VOL (+)] → [POWER]

This operation sequence puts the unit into service mode.

The screen display is :



b. METHOD OF CANCELLATION FROM SERVICE MODE

Set the standby condition (Press [POWER] button on the commander), then press [POWER] button again, hereupon it becomes TV mode.

c. METHOD OF WRITE INTO MEMORY

1) Set to Service Mode.
2) Press [1] (UP) and [4] (DOWN), to select the adjustment.
4) Press [MUTING] button to indicate WRITE on the screen.
5) Press [0] button to write into memory.

d. MEMORY WRITE CONFIRMATION METHOD

1) After adjustment, pull out the plug from AC outlet, and then plug into AC outlet again.
2) Turn the power switch ON and set to Service Mode.
3) Call the adjusted items again to confirm adjustments were made.

[1], [4] ↓	Select the adjustment item.
[3], [6] ↓	Raise/lower the data value.
[MUTING] ↓	Writes.
[0]	Executes the writing.

[7], [0]	All the data becomes the values in memory.
[8], [0]	All user control goes to the standard state.
[5], [0]	Service data initialization (Be sure not to use usually.)
[MUTING] + [0]	Write 50Hz adjustment data to 60Hz, or vice versa.
[2], [0]	Copy and write all data.

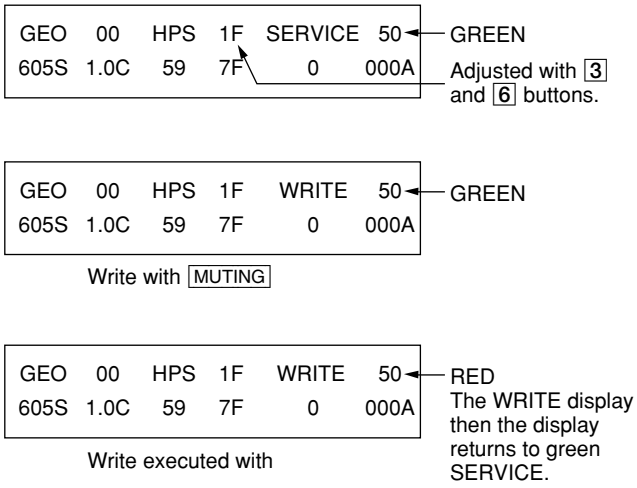
4-2. ADJUSTMENT METHOD

Item Number 00 of device GEO

This explanation uses H-Position as an example.

1. Select "GEO 00 HPS" with the [1] and [4] buttons.
2. Raise/lower the data with the [3] and [6] buttons.
3. Select the optimum state. (The standard is 1F for PAL reception.)
4. Write with the [MUTING] button. (The display changes to WRITE.)
5. Execute the writing with the [0] button. (The WRITE display will be changed to red color while excuting, and back to SERVICE.)

Example on screen display :-


GEO 00 HPS 1F SERVICE 50
605S 1.0C 59 7F 0 000A
GREEN
Adjusted with 3 and 6 buttons.
GEO 00 HPS 1F WRITE 50
605S 1.0C 59 7F 0 000A
GREEN
Write with MUTING
GEO 00 HPS 1F WRITE 50
605S 1.0C 59 7F 0 000A
RED
The WRITE display then the display returns to green SERVICE.
Write executed with

Use the same method for all Items. Use [1] and [4] to select the adjustment item, use [3] and [6] to adjust, write with [MUTING], then execute the write with [0].

Note : 1. In [WRITE], the data for all items are written into memory together.
2. For adjustment items that have different standard data between 50Hz or 60Hz, be sure to use the respective input signal after adjustment.

Adjustment Item Table

TVG	Functionality		Initial	Range	Function	Table & Note	Device Name (Slave Address)	RAM Address (Bit Range)	NVM Address			Remarks:
Category	No.	Name							Slave	Sub	Bit	Initial data for tables
GEO	00	HPS	1E	3F	H Position	Normal(50/60)/Wide(50/60)	CXA2159S(88H)	3B9 (7-2)	A6	(6B/6D)/(6F/71)	7-2	1E (for 60Hz)
	01	HSZ	25	3F	H Size	Normal(50/60)/Wide(50/60)		99 (7-2)	A0/A4	(A0/AD)/(43/4E)	7-2	typical
	02	PAP	1F	3F	Pin Amp	Normal(50/60)/Wide(50/60)		9B (7-2)	A0/A4	(A2/AF)/(45/50)	7-2	typical
	03	TLT	7	0F	Trapezium	Normal(50/60)/Wide(50/60)		9D (7-4)	A0/A4	(A4/B1)/(47/52)	7-4	typical
	04	VPS	1F	3F	V Position	Normal(50/60)/Wide(50/60)		97 (7-2)	A0/A4	(9E/AB)/(41/4C)	7-2	typical
	05	VSZ	1F	3F	V size	Normal(50/60)/Wide(50/60)		96 (7-2)	A0/A4	(9D/AA)/(40/4B)	7-2	typical
	06	SCO	7	0F	S Correction	Normal(50/60)/Wide(50/60)		98 (7-4)	A0/A4	(9F/AC)/(42/4D)	7-4	typical
	07	VLN	7	0F	V Linearity	Normal(50/60)/Wide(50/60)		98 (3-0)	A0/A4	(9F/AC)/(42/4D)	3-0	typical
	08	BOW	7	0F	AFC Bow	Normal(50/60)/Wide(50/60)		9E (7-4)	A0/A4	(A5/B2)/(48/53)	7-4	typical
	09	AGL	7	0F	AFC Angle	Normal(50/60)/Wide(50/60)		9E (3-0)	A0/A4	(A5/B2)/(48/53)	3-0	typical
	0A	UPN	1F	3F	Upper Pin	Normal(50/60)/Wide(50/60)		9C (7-2)	A0/A4	(A3/B0)/(46/51)	7-2	typical
	0B	LPN	1F	3F	Lower Pin	Normal(50/60)/Wide(50/60)		A0 (7-2)	A0/A4	(A7/B4)/(4A/55)	7-2	typical
	0C	HBL	1	1	H Blanking on/off			3BB (1)	A6	73	1	typical
	0D	LBL	0B	0F	Left H Blanking	{Normal(50/60)/Wide(50/60)}		3BA (7-4)	A6	(6C/6E)/(70/72)	7-4	0F (for 60Hz)
	0E	RBL	2	0F	Right H Blanking	{Normal(50/60)/Wide(50/60)}		3BA (3-0)	A6	(6C/6E)/(70/72)	3-0	typical
WHB	00	RDR	25	3F	R Drive	DYNAMIC/others	CXA2159S(88H)	369 (7-2)	A0	C0/BA	7-2	2A (for non-DYNAMIC)
	01	GDR	25	3F	G Drive	DYNAMIC/others		36A (7-2)	A0	C1/BB	7-2	typical
	02	BDR	25	3F	B Drive	DYNAMIC/others		36B (7-2)	A0	C2/BC	7-2	typical
	03	RCT	7	0F	R Cutoff	SECAM/others		36D (3-0)	A0	C3/BD	3-0	typical
	04	GCT	7	0F	G Cutoff	SECAM/others		36E (7-4)	A0	C4/BE	7-4	typical
	05	BCT	7	0F	B Cutoff	SECAM/others		36E (3-0)	A0	C4/BE	3-0	typical
	06	BMN	15	1F	Brightness Minimum Data			106 (6-2)	A0	22	6-2	-
	07	SBR	25	3F	Sub Brightness Control			107 (7-2)	A0	23	7-2	-
	08	APB	0	3	Sub Bright Control Switch for Intelligent Picture #3			107 (1-0)	A0	23	1-0	-
SAJ	00	PMX	38	3F	Picture Maximum Data	non-Wide/Wide	CXA2159S(88H)	105 (7-2)	A0	21/20	7-2	typical
	01	SHU	7	0F	Sub Hue Control	TV/Video		108 (5-2)	A0	24/38	5-2	typical
	02	SSH	5	0F	Sub Sharpness Control	TV/Video		109 (7-4)	A0	25/36	7-4	09 (for VIDEO)
	03	SCL	1F	3F	Sub Color Control	(NTSC/others)/WIDE(NTSC/others)		10A (7-2)	A0	(37/26)/(3C/3B)	7-2	typical

TVG	Functionality		Initial	Range	Function	Table & Note	Device Name Slave Address	RAM Address (Bit Range)	NVM Address			Remarks:
Category	No.	Name							Slave	Sub	Bit	Initial data for tables
VP	00	EHT	5	0F	EHT Comp	Normal(50/60)/Wide(50/60)	CXA2159S(88H)	9D (3-0)	A0[/A4]	A4/B1[/(47/52)]	3-0	typical
	01	GMA	2	3	Gamma Correction (sepatated in STANDARD mode)	NON-STD(NTSC/others)/STD(NTSC/others)		352 (1-0)	A4	68/67/6A/69	1-0	typical
	02	APG	0	1	Gamma Control Switch for Intelligent Picture #3	NON-STD(NTSC/others)/STD(NTSC/others)		352 (2)	A4	68/67/6A/69	2	-
	03	YDL	6	0F	Y Delay	PAL/SECAM/NTSC/DVD		357 (3-0)	A4	3C/3E/3D/3F	3-0	(09/08/08 for SECAM/NTSC/DVD)
	04	SST	1	3	SECAM ID Start Position	SECAM&ATUTO/FORCED-PAL&NTSC		354 (5-4)	A4	6B/6D	5-4	(00 for forced PAL/NTSC)
	05	SSP	1	3	SECAM ID Stop Position	SECAM&ATUTO/FORCED-PAL&NTSC		354 (7-6)	A4	6B/6D	7-6	(03 for forced PAL/NTSC)
	06	RLM	0	3	RGB Limit			5D (1-0)	A0	83	1-0	typical
	07	SLV	2	O3	SECAM ID Level	SECAM&ATUTO/FORCED-PAL&NTSC		355 (1-0)	A4	6C/6E	1-0	(02 for forced PAL/NTSC)
	08	SBF	22	3F	SECAM BELL fO	SECAM&ATUTO/FORCED-PAL&NTSC		355 (7-2)	A4	6C/6E	7-2	(22 for forced PAL/NTSC)
	09	DYC	1	1	Dynamic Color on/off			66 (1)	A0	8C	1	-
	0A	ABL	1	1	ABL Mode Switching (except STANDARD mode)	except STANDARD		65 (1)	A0	8B	1	(00 for STANDARD)
	0B	VTH	1	1	ABL Detection Vth Switching			65 (0)	A0	8B	0	-
	0C	SF0	1	1	FO Switching for Sharpness	NTSC/others		33C (1)	A4	5C/59	1	typical
	0D	DCX	1	1	DC Trans. Ratio Switching			62 (1)	A0	88	1	-
	0E	SHT	1	1	Pre-/Overshoot ratio Switch	NTSC/others		33D (0)	A4	5D/5A	0	typical
	0F	HDW	0	1	H Drive Pulse Width Switch			5A (6)	A0	80	6	-
	10	AFC	1	O3	AFC Gain Control	TV/Video/Text		A3 (1-0)	A0	28/29/2A	1-0	(00/01 dor VIDEO/TEXT)
	11	HOS	7	0F	H Oscillation			68 (7-4)	A0	8E	7-4	-
	12	HSS	0	1	Slice Level of H Sync Sep.			69 (1)	A0	8F	1	-
	13	VSS	0	1	Slice Level of V Sync Sep.			69 (0)	A0	8F	0	-
	14	HMS	1	1	Macro Vision C/m off/on	Normal(50/60)/Wide(50/60)		96 (0)	A0[/A4]	9D/AA[/(40/48)]	0	typical
	15	YUV	0	1	Y SEL			5A (2)	A0	80	2	-
	16	CDV	1	3	CD mode for video and RF under no signal	video only		350 (5-4)	A0	2B	5-4	-
	17	RON	1	1	R ON	not memorized		5B (2)	A0	81	2	not memorised
	18	GON	1	1	G ON	not memorized		5B (1)	A0	81	1	not memorised
	19	BON	1	1	B ON	not memorized		5B (0)	A0	81	0	not memorised
	1A	PON	1	1	P ON	not memorized		5A (7)	A0	80	7	not memorised
	1B	AXN	1	1	AXIS SW	(NTSC/others)/wide(NTSC/others)[only DYNA]		10A (0)	A0	37/26[/(3C/3B)]	0	-
	1C	RSL	0	1	RGB SEL			66 (0)	A0	8C	0	-
	1D	VBW	0	3	VBLKW			70 (1-0)	A0	96	1-0	-
	1E	RFP	0	1	REFP			6E (0)	A0	94	0	-
	1F	VMC	0	3	VM Level			5D (3-2)	A0	83	3-2	-
	20	CBF	0	1	Chroma Bandpass Filter			33E (1)	A6	74	1	
	21	CTO	0	1	Chroma Trap Off			33E (0)	A6	74	0	

TVG	Functionality		Initial	Range	Function	Table & Note	Device Name Slave Address	RAM Address (Bit Range)	NVM Address			Remarks:
Category	No.	Name							Slave	Sub	Bit	Initial data for tables
AP2	00	BBS	3	0F	Bass Boost Level Setting			3C1 (7-4)	A0	44	7-4	0
	01	BCB	0	1	Boost cut select for Sub Bass Control			3C2 (2)	A0	45	2	0
	02	SBS	0	3	Sub Bass Level Setting			3C2 (1-0)	A0	45	1-0	0
	03	BCT	0	1	Boost cut select for Sub Treble Control			3C3 (2)	A0	46	2	0
	04	STS	0	3	Sub Treble Level Setting			3C3 (1-0)	A0	46	1-0	0
	05	AGL	0	3	AGC Level Setting			3C5 (3-2)	A0	48	3-2	0
	06	BSW	0	1	Bass Boost ON/OFF Switch			3C1 (3)	A0	44	3	0
	07	BAS	0	1F	Bass sound mode control	{BSW:1/10}*{dyna/drama/soft}		3C7 (4-0)	A6	{7E/81/84}{75/78/7B}	4-0	6
	08	TRE	0	1F	Treble sound mode control	{BSW:1/10}*{dyna/drama/soft}		3C8 (4-0)	A6	{7F/82/85}{76/79/7C}	4-0	6
	09	BBE	0	FF	BBE Sound mode Control	{BSW:1/10}*{dyna/drama/soft}		3C9 (7-0)	A6	{80/83/86}{77/7A/7D}	7-0	6
MSP	00	WST	15	FF	W/G Stereo Threshold		MSP3415D(84H)	165	A0	60	7-0	-
	01	WBT	EC	FF	W/G Bilingual Threshold			166	A0	61	7-0	-
	02	WLL	5	FF	W/G Monaural Threshold			167	A0	62	7-0	-
	03	WAC	1	0F	W/G Agreement Count			168 (3-0)	A0	63	3-0	-
	04	WDL	30	FF	W/G Search Delay			169	A0	64	7-0	-
	05	NDL	20	FF	NICAM Search Delay			16A	A0	65	7-0	-
	06	SDL	10	FF	Stereo status Read Delay			16B	A0	66	7-0	-
	07	AGC	1	1	AGC Switch Auto/Constant			116 (7)	A0	68	7	-
	08	REL	28	3F	AGC Gain at Constant Mode			116 (6-1)	A0	68	6-1	-
	09	CRM	0	1	Carrier muting on/off			115 (9)	A0	67	1	-
	0A	ACO	1	1	Audio Clock out on/off			11A (5)	A0	69	5	-
	0B	FP	1B	7F	FM Prescale for non-M system			313	A0	6A	6-0	-
	0C	FPM	32	7F	FM Prescale for M system			314	A0	6B	6-0	-
	0D	FH	36	7F	FM Prescale for HDEV			315	A0	6C	6-0	-
	0E	FHM	65	7F	FM Prescale for HDEV and M			316	A0	6D	6-0	-
	0F	WGP	1C	7F	W/G Prescale			317	A0	6E	6-0	-
	10	NIP	7F	7F	NICAM Prescale			14F	A0	6F	6-0	-
	11	ERR	50	FF	Auto FM switch Threshold			174	A0	70	7-0	-
	12	VOL	6D	FF	Loud Speaker gain 7000h to 7ff0h			346	A4	62	7-0	-

TVG	Functionality		Initial	Range	Function	Table & Note	Device Name Slave Address	RAM Address (Bit Range)	NVM Address			Remarks:
Category	No.	Name							Slave	Sub	Bit	Initial data for tables
PIP	00	PRO	0	1	Progreeive Scan Mode Enable		SDA9288X(D6H)	1B1	A4	00	2	-
	01	RED	0	1	Read Double Mode			1B1	A4	00	3	4
	02	FEI	0	3	Field Select			1B1	A4	00	1-0	4
	03	HPS	35	FF	Horizontal Picture Position			34C	A4	26	7-0	4
	04	VPS	1B	FF	Vertical Picture Position			1B3	A4	02	7-0	4
	05	HFP	0	0F	Horizontal Fine Positioning			1B4	A4	03	3-0	4
	06	VFP	0	0F	Vertical Fine Positioning			1B4	A4	03	7-4	4
	07	DIS	0	3	Display standard			1B5	A4	04	7-6	4
	08	HOS	0	3	Horizontal Size			1B5	A4	04	3-2	4
	09	VES	0	3	Vertical Size			1B5	A4	04	1-0	4
	0A	FPS	0	3	Force Parent Standard			1B6	A4	05	7-6	4
	0B	HZM	0	7	Horizontal Zoom			1B6	A4	05	2-0	4
	0C	VSP	0	1	Vertical Sync Pule Noise Reduction			1B7	A4	06	5	4
	0D	VDL	0	1F	Vertical Sync Pulse Delay			1B7	A4	06	4-0	4
	0E	FRH	5	7	Frame Width Horizontal			1B8	A4	07	4-2	4
	0F	FWV	2	3	Frame Width Vertical			1B8	A4	07	1-0	4
	10	VRD	0	1	Reduction			1B8	A4	07	5	4
	11	VBK	0	1	Vertical Blanking			1B9	A4	08	5	4
	12	DLY	0	F	Select Delay			1B9	A4	08	3-0	4
	13	PCR	0	1	Position Correction			1BA	A4	09	7	4
	14	AGM	3	3	AGC Mode			1BB	A4	0A	6-5	4
	15	AGC	6	F	Automatic Gain Control Value			1BB	A4	0A	4-1	4
	16	CVB	0	3	CVBS Select			1BC	A4	0B	7-6	4
	17	CPD	1	3	CLAMPING Duration			1BC	A4	0B	5-4	4
	18	CPT	1	3	CLAMPING Pulse start			1BC	A4	0B	3-2	4
	19	LUM	0	3	Luminance offset			1BC	A4	0B	1-0	4
	1A	PLL	0	3	Insert PLL Time Constant	TV/VIDEO		34B	A4	24/25	7-6	4
	1B	YCD	2	F	Y/C Delay	PAL/SECAM/NTSC/DVD		3DC	A4	98/99/9A/9B	3-0	4
	1C	NSR	0	3	Noise Reduction for insert PII	TV/VIDEO		34B	A4	24/25	5-4	4
	1D	LSP	0	1	Standard Identification Speed			1BE	A4	0D	2	4
	1E	KIL	0	3	Color Killer Treshold			1BE	A4	0D	1-0	4
	1F	BGP	0	1	Burst Gate Position			1BF	A4	0E	7	4
	20	SEC	0	1	SECAM Identification level			1BF	A4	0E	6	4
	21	DEM	1	3	Deemphasw selection			1BF	A4	0E	5-4	4
	22	CMA	0	3	Chroma Bandwith			1BF	A4	0E	1-0	4
	23	IFC	2	3	IF Compensation Filter			1C0	A4	0F	7-6	4
	24	HUE	0	1F	Hue			1C0	A4	0F	5-0	4
	25	SCA	7	1F	Color Subcarrier Adjustment			1C1	A4	10	4-0	4
	26	CON	0	F	Contrast Adjustment			1C2	A4	11	7-4	4
	27	BLR	0	F	Blanking Level Red Channel			1C2	A4	11	3-0	4
	28	BRT	0	F	Brightness Adjustment			1C3	A4	12	7-4	4
	29	BLG	0	F	Blanking Level Green Channel			1C3	A4	12	3-0	4
	2A	BIR	0	1	Blanking Inversion Red Channel			1C4	A4	13	5	4
	2B	BIB	0	1	Blanking Inversion Blue Channel			1C4	A4	13	4	4
	2C	BLB	0	F	Blanking level blue channel			1C4	A4	13	3-0	4
	2D	INT	0	1	Refresh Interval			1C4	A4	13	6	4
	2E	PKR	4F	FF	Peak Level Red Channel			1C5	A4	14	7-0	4
	2F	PKG	4F	FF	Peak Level Green Channel			1C6	A4	15	7-0	4
	30	PKB	4F	FF	Peak Level Blue Channel			1C7	A4	16	7-0	4
	31	FRY	A	F	Frame Color Y			1C8	A4	17	3-0	4
	32	OUT	1	1	Output Format			1C9	A4	18	7	4
	33	FRU	0	F	Frame Color U			1C9	A4	18	3-0	4
	34	FRV	0	F	Frame Color V			1CA	A4	19	3-0	4
	35	SAT	7	F	Color Saturation Adjustment			1CB	A4	1A	7-4	4
	36	YPK	7	7	Y Peak Adjustment			1CB	A4	1A	3-1	4
	37	YCO	0	F	Y Coring Enable			1CB	A4	1A	0	4
	38	PAL	3	3	PAL ID level			1CE	A4	1D	1-0	4
	39	POV	0	7	Position Offset Vertical			1CF	A4	1E	7-5	4
	3A	POH	0	1F	Position Offset Horizontal			1CF	A4	1E	4-0	4
	3B	VSH	0	1F	Vertical Shrink			1D0	A4	1F	4-0	-
	3C	HSH	0	1F	H Shrink			1D1	A4	20	4-0	-
	3D	CPL	1	3	CLAMPING Pulse Length			1D2	A4	21	1-0	-

TVG	Functionality		Initial	Range	Function	Table & Note	Device Name Slave Address	RAM Address (Bit Range)	NVM Address			Remarks:
Category	No.	Name							Slave	Sub	Bit	Initial data for tables
YCT	00	SHU	0F	1F	Sub Hue Adjustment	TV/Video	CXA2163AQ(8AH)	39B	A4	7B/7C	4-0	
	01	PNG	1	1	PAL/NTSC Gate Width			7A	A4	28	6	
	02	PNI	0	1	PAL/NTSC Sensitivity SW			7A	A4	28	7	
	03	SCL	7	0F	Sub Color Control	50/60*TV/Video		39D	A4	73/74/75/76	3-0	
	04	SCT	8	0F	Sub Contrast Control	50/60*TV/Video		39D	A4	73/74/75/76	7-4	
	05	SF0	2	3	Sharpness Center Frequency Changing			7C	A4	2A	1-0	
	06	SEQ	3	3	Sharpness Equalizer Characteristic			7C	A4	2A	3-2	
	07	SHG	5	0F	Sharpness Gain Control	50/60*TV/Video/DVD		3AB	A4	92/93/94/95/96/97	7-4	
	08	YOL	1F	3F	Y-Output Level Control			7D	A4	2B	5-0	
	09	BSP	0	3	Black Stretch Start Point Changing			7D	A4	2B	7-6	
	0A	COL	1F	3F	Cb/Cr Output Level Control	DVD/others		3A3	A4	64/63	5-0	
	0B	DCR	0	3	DC Restoration Ratio Adjustment			7E	A4	2C	7-6	
	0C	BF0	1	3	BPF/TQF F0 Adjustment			7F	A4	2D	1-0	
	0D	BFQ	2	3	BPF/TQF Q Adjustment			7F	A4	2D	3-2	
	0E	FSW	1	1	BPF/TQF Switch			7F	A4	2D	4	
	0F	SDT	1	1	SECAM Double Trap Switch			7F	A4	2D	6	
	10	LPF	1	1	Y/Cb/Cr LPF Switch			7F	A4	2D	7	
	11	YDL	6	0F	Y-DL Time Adjustment	TV/Video/S-input/DVD		39A	A4	77/79/7A/78	6-3	
	12	CMT	0	1	Cb/Cr Output Mute Switch			81	A4	2F	7	
	13	B01	7	0F	Cb Offset 1 Adjustment (main route)			82	A4	30	7-4	
	14	RO1	7	0F	Cr Offset 1 Adjustment			82	A4	30	3-0	
	15	CDF	0	7	V Count Down Frequency Switch	forced 50Hz for no signal		3A9	A4	7D	2-0	
	16	CDM	0	3	V Count Down Judge Switch			84	A4	32	4-3	
	17	AFC	0	3	AFC Sensitivity Switch	(TV/)Video/DVD		3A5	A4	71/72	6-5	
	18	MVM	1	1	Macrovision Mask + AFC Mask			84	A4	32	7	
	19	SRY	7	0F	SECAM R-Y Black Adjustment			85	A4	33	3-0	
	1A	SBY	1	0F	SECAM B-Y Black Adjustment			85	A4	33	7-4	
	1B	BEL	2	3	SECAM BELL/HPF Switching			86	A4	34	1-0	
	1C	BLF	0	1	BELL f0 Adjustment			86	A4	34	2	
	1D	SVI	0	1	SECAM V-ID Switch			86	A4	34	3	
	1E	SGP	0	3	SECAM Gate Position Adjustment			86	A4	34	5-4	
	1F	SID	1	1	SECAM Sensitivity Switch	except SECAM		3A7	A4	3A	6	
	20	SIH	0	1	SECAM Inhibition Switch			86	A4	34	7	
	21	STP	0	1	Y Black Level Setup for PAL plus			87	A4	35	1	
	22	ASW	1	1	Auto Video select mode SW			87	A4	35	7	
	23	WSH	0	3	Sharpness Gain Step for noise reduction			3A1	A4	38	1-0	
	24	WCO	0	3	Cb/Cr Output Level Step for noise reduction			3A2	A4	39	7-6	
	25	CB2	7	0F	Cb2 offset adjustment (YCbCr2 input)			83	A4	31	7-4	
	26	CR2	7	0F	Cr2 offset adjustment (YCbCr2 input)			83	A4	31	3-0	
	27	HPH	0	1	HS Output phase switch			87	A4	35	3	
	28	VPH	0	1	Switch for VP output phase			88	A4	36	6	
	29	NCM	0	1	NTSC COMB			80	A4	2E	7	

TVG	Functionality		Initial	Range	Function	Table & Note	Device Name Slave Address	RAM Address (Bit Range)	NVM Address			Remarks:
Category	No.	Name							Slave	Sub	Bit	Initial data for tables
TE	00	NR0	01	07	NR	NTSC/Others	DTE (EOH)	3AC	A6	5F/61	6-4	
	01	TC0	04	0F	TE Coring	NTSC/Others		3AC	A6	5F/61	3-0	
	02	TG0	05	07	TE Gain	NTSC/Others		3AD	A6	60/62	2-0	
	03	STH	00	01	Forced TE bypass 1:TE bypass			3B0	A6	63	1	
	04	COF	00	01	Color Component OFF 1:OFF(512)			386	A6	4D	2	
	05	YOF	00	01	Luminance Component OFF 1:OFF			386	A6	4D	1	
	06	VJR	00	03	V jitter control 0:ON 1:SP1 2:SP2 3:SP2			388	A6	4F	3-2	
	07	TOF	00	01	TE OFF 1: TE OFF			3B0	A6	63	7	
	08	DOF	00	01	Dot NR OFF 1:Dot NR OFF			3B0	A6	63	6	
	09	FOF	01	01	TE LPF OFF 1:LPF OFF			389	A6	50	5	
	0A	CTH	00	01	Color TE OFF 1:OFF			389	A6	50	4	
	0B	PSL	02	03	TE Parameter Selection			389	A6	50	1-0	
	0C	CLP	08	0F	Input Clamp Level			38A	A6	51	7-4	
	0D	CL2	08	0F	Output Clamp Level			38A	A6	51	3-0	
	0E	LA1	00	0F	Level depend Gain (+, White)			38F	A6	56	7-4	
	0F	LA2	01	0F	Level depend Gain (+, Black)			38F	A6	56	3-0	
	10	LA3	0F	0F	Level depend Gain (-, White)			390	A6	57	7-4	
	11	LA4	01	0F	Level depend Gain (-, Black)			390	A6	57	3-0	
	12	CRW	04	07	TE Y/C Compensation ratio			396	A6	5D	2-0	
	13	YCD	03	07	TE Y/C output delay adjustment			387	A6	4E	2-0	
	14	OSO	00	03	OFF Sharpness Offset in YCJ			3B0	A6	63	3-2	
NR	00	DMO	00	01	NR Demo Mode ON/OFF (1=Demo Mode)		DTE (BEH)	379	A6	41	1	
	01	THV	03	07	Offset of Noise Threshold level for vertical direction			3B3	A6	65	7-5	
	02	THH	0F	1F	Offset of Noise Threshold level for horizontal direction			3B3	A6	65	4-0	
	03	BLL	07	0F	Offset of Level detection for Black Level			3B4	A6	66	7-4	
	04	CST	07	0F	Offset of Level detection for Color Level			3B4	A6	66	3-0	
	05	THC	07	0F	Offset of Edge Detection Threshold			3B5	A6	67	3-0	
	06	NRF	00	01	NR0 always Rank = 0			3B7	A6	64	0	
	07	DIG	00	01	A/D in or Digital In (1=Digital In)			381	A6	49	5	
TXT	00	TXH	0	3	Teletext Horizontal Position		SAA5261(58H)	33A (1-0)	A4	58	1-0	-
	01	TXV	0	3	Teletext Vertical Position			33A (5-4)	A4	58	5-4	-
OPM	00	OSH	0D	3F	OSD H Position	Option - Misc	CXP750097(60H)	19B (7-2)	A0	27	7-2	-
	01	COM	2	3	Comb Selection (0: None, 1: NTSC, 2: Digital, 3: 3D)	[NOV-DTE] / (0: None, 1: Multi, 2: 3D, 3: None) [DTE]		331 (7-6)	A0	50	7-6	-
	02	APC	1	1	APC Switch			330 (5)	A0	4F	5	-
	03	TSY	0	3	TV Sys at Auto TV Sys			330 (4-3)	A0	4F	4-3	-
	04	MUT	0	1	No signal Mute			330 (0)	A0	4F	0	-
	05	AFM	1	1	Auto FM switch			330 (1)	A0	4F	1	-
	06	RFB	0	3	C-BPF Control			331 (5-4)	A0	50	5-4	-
	07	TVO	2	7	Tilt to V-Angle offset			331 (2-0)	A0	50	2-0	-
	08	DBL	0	1	Disable Blueback Function			330 (2)	A0	4F	2	-
	09	SSO	1	3	Speed Search Option (0: Off, 1: 4x, 2: 6x, 3: 8x)			330 (7-6)	A0	4F	7-6	-
	0A	SCH	1	7F	CH Selection for Shipping Condition	NTSC models only		373 (0-6)	A0	3D	6-0	-
	0B	SCA	1	1	Cable/Air selection for shipping condition	NTSC models only		373 (7)	A0	3D	7	-
	0C	POR	0	1	Power on Reset Detection From YCT			331 (3)	A0	50	3	-
	0D	NRC	3	FF	N-Det Counter for DTE			3DF (7-0)	A0	3E	7-0	-
	0E	RUC	0F	0F	RF Signal Change Counter after Unlocked			3E4 (3-0)	A0	4E	3-0	-
	0F	RLC	0F	0F	RF Signal Change Counter after Locked			3E3 (3-0)	A0	4D	3-0	-
	10	BYP	0	1	Bypass DTE			3B0 (0)	A6	63	0	-
	11	PBL	0	1	DTE ON/OFF Blanking			3E2 (0)	A6	68	0	-
OPB	00	OP1	FF	FF	Optional Bits 1 (see below)	Option - Bits	CXP750097(60H)	4E	A0	2D	7-0	-
	01	OP2	67	FF	Optional Bits 2 (see below)			4F	A0	2E	7-0	-
	02	OP3	31	FF	Optional Bits 3 (see below)			50	A0	2F	7-0	-
	03	OP4	97	FF	Optional Bits 4 (see below)			51	A0	30	7-0	-

NOTE

- shaded items are fixed data.
- Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.
- Note for Different Data Those are the standard data values written on the microprocessor. Therefore, the data values of the modes and stored respectively in the memory. In case of a device replacement, adjustment by rewriting the data value is necessary for some items.

ITEM INFORMATION

No. OPB0 OP1

Item	XTAL 4.43	XTAL 3.58	SECAM	AR34/29*	B/G	I	D/K	M
KV-AR29M31	1	1	1	1	1	1	1	1

(APPLICABLE FOR XF-L(21" & 14") MODELS ONLY.

AR34/29* SHG Offset in YCT 0 = AR29/25 1 = AR34

No. OPB1 OP2

Item	TOP	NICAM	HDEV	Thai Bil	PIP 4	DVD Input	AV Input	
KV-AR29M31	1	1	1	0	1	1	1	1

AV Input 00 = no AV Input 01 = 1 AV Input
10 = 2 AV Input 11 = 3 AV Input

DVD Input Effective only when "AV Input" is set to 3 AV Input

PIP 4 PIP 4 0 = disabled, 1 = enabled

No. OPB2 OP3

Item	Initial menu	AP2	Auto PIC	A-TVsys	US ST	DTE	Forced 50/60	Colour SW*2
KV-AR29M31	1	1	1	1	0	1	0	1

Initial Menu Initial Menu Setup 0 = disabled, 1 = enabled

AP2 Auto Processor Selection 0 = AP, 1 = AP2.

Auto PIC*3 Auto Picture Improvement 0 = off PNC1/PNC2
1 = activate PNC1/PNC2

A-TVsys Auto TV System in Auto Program 0 = disabled, 1 = enabled

US ST* USA Stereo 0 = disabled, 1 = enabled

DTE DTE Model Selection 0 = Non DTE, 1 = DTE

Forced 50/60 Forced to 50/60 Hz during no signal condition 0=60Hz, 1=50Hz

Color SW*2 Color Data Selection in Dynamic Mode 0 = 65 (No PIP), 1 = 57 (PIP)

Note: *1 - For XA21/XH29 Models Only
*2 - For XA34/29/25 Models Only
*3 - For PNC3, the enables are from service item APG and APB.

No. OPB3 *OP4

Item	PNC2	Korean ST	Vid NTSC3.58	Wide	Video3	Chinese(multi mdl)	Arabic/C.Chinese	Thai/Korean
KV-AR29M31	0	0	0	0	0	1	1	1

APPLICABLE TO XS ONLY - Sub Language Selection (Bit 0 - Bit 2)

Korean Stereo* Korean Stereo 0 = disabled, 1 = enabled

PNC2*2 Enable switch of PNC2 0 = disable, 1 = enable

Video NTSC3.58* Video Color System 0 = Multi System, 1 = Single System (NTSC3.58)

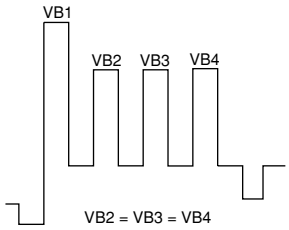
Wide Enable wide mode 0 = disable, 1 = enable

Note : *APPLICABLE FOR NTSC MODELS ONLY

4-3. ADJUSTMENT FOR NON DIGITAL TEXTURE ENHANCER (DTE) MODEL (not used for this model)

SUB COLOR ADJUSTMENT

1. Select Video.
2. Input PAL Color Bar
3. Set to following condition PICTURE 100%, BRIGHTNESS 50%, Color 50%.
4. Connect an oscilloscope to pin ① (BOUT) of CN305, A Board.
5. Set the service mode and select SAJ 3 'SCL' with [1] and [4] of the commander then adjust the VB2=VB3=VB4 [3] and [6].
6. Press [MUTING] → [0] of the commander to write the data.
7. Input NTSC Color Bar to set and repeat items (3 to 7).
8. Select "WIDE" mode, write the "SAME DATA- 3 STEPS" for both PAL and NTSC Color Bar input.



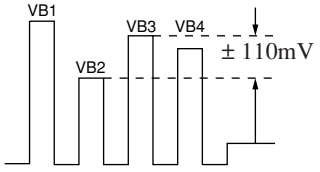
VB2 = VB3 = VB4 (Difference is within 70mV)

SUB COLOR ADJUSTMENT

1. Select Video.
2. Input PAL Color Bar
3. Set to following condition PICTURE 100%, BRIGHTNESS 50%, Color 50%.
4. Connect an oscilloscope to pin ① (BOUT) of CN305, A Board.
5. Set the service mode and select SAJ 3 'SCL' with [1] and [4] of the commander then adjust the VB2=VB3=VB4 [3] and [6].
6. Press [MUTING] → [0] of the commander to write the data.
7. Add 6 steps and save the data.
8. Input NTSC Color Bar to TV set and repeat items 3 to 7.
9. Select "WIDE" mode, write the "SAME DATA- 3 STEPS" for both PAL and NTSC Color Bar input.

SUB HUE ADJUSTMENT

1. Select Video 1.
2. Input a NTSC 3.58 color-bar, video into Video 1.
3. Set the following condition:
   PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
4. Connect an oscilloscope to pin ① (B OUT) of CN305, A board.
5. Select SAJ 1 "SHU" with [1] and [4] of the commander by setting to Service Mode and adjust to VB1=VB2=VB3=VB4 with [3] and [6].



VB1 = VB2 = VB3 = VB4

The highest level of VB1,VB2,VB3,VB4 must be aligned at the same line. Ideal difference level between VB2 and VB3 should be within ± 110mV.

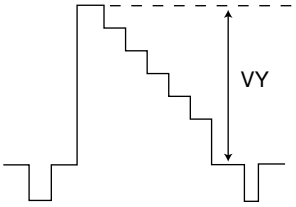
6. Press [MUTING] → [0] of the commander to write the data.
7. Adjust SAJ 1 "SHU" as step 3 to 6 when receiving TV mode.

4-4. ADJUSTMENT FOR DIGITAL TEXTURE ENHANCER (DTE) MODEL

Y LEVEL ADJUSTMENT

1. Select Video.
2. Input PAL Color Bar to TV set (white reference 100%).
3. Set the following condition:
   DTE : ON
   Picture Mode : Dynamic
4. Connect an oscilloscope to pin ① (CV/Y in) of CN106, A Board.
5. Set to Service Mode and YCT 08 'YOL' with [1] and [4] of the commander then adjust to VY within spec with [3] and [6].
6. Then press [MUTING] → [0] to write the data.
7. Select RF.
8. Repeat item [2] to [4].
9. Set to Service Mode and YCT 04 'SCT' with 1 and 4 of the commander then adjust to VY within spec with [3] to [6].
10. Copy SCT data to NTSC (RF).

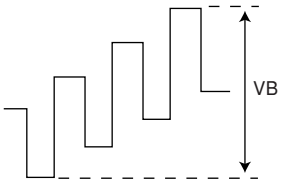
SCT Setting (Video Mode) : 07h (NTSC & PAL)



SPEC: VY : 1.2 Vpp ± 0.05m Vpp

SUB COLOR (YCT) ADJUSTMENT

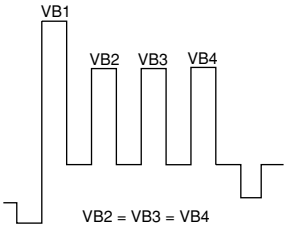
1. Select Video.
2. Input NTSC Color Bar.
3. Set the following condition:
   DTE : ON
   Picture Mode : Dynamic
   NTSC 75% Color Bar
4. Connect an oscilloscope to pin ② (B-Y in) of CN303, A Board.
5. Set to Service Mode and YCT 0A 'COL' with [1] and [4] of the commander then adjust to VB within spec with [3] and [6].
6. Then press [MUTING] → [0] to write the data.
7. Select RF.
8. Repeat item no [2] to [4].
9. Set to Service Mode and YCT 03 'COL' with [1] and [4] of the commander then adjust the waveform within spec with [3] and [6].
10. Then press [MUTING] → [0] to write the data.
11. Input PAL Color Bar (75%) and repeat item no 8 to 10.



SPEC :
VIDEO : VB = 0.931 Vpp ± 50 mVpp
RF : VB = 0.931 Vpp ± 50 mVpp

SUB COLOR (YCJ) ADJUSTMENT

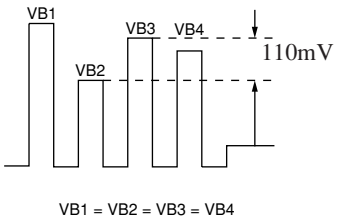
1. Select Video.
2. Input PAL Color Bar to TV set.
3. Set the following condition:
   Pic: 100%, Col: 50%, Brightness: 50%, DTE: OFF
4. Connect an oscilloscope to pin ② (B output) of CN305, A Board.
5. Set to Service Mode and SAJ 03 'SCL' with [1] and [4] of the commander then adjust to VB2 = VB3 = VB4 = with [3] and [6].
6. Then press [MUTING] → [0] to write the data.
7. Add offset steps and save the data.
   Offset: 25... 0
   29... 0
   34... 0
8. Input NTSC color bar to TV set and repeat item no 3 to 7.
10. Select "WIDE" mode, write the "SAME DATA - 3 STEPS" for both PAL and NTSC input.



VB2 = VB3 = VB4 (Difference is within 70mV)

SUB HUE ADJUSTMENT

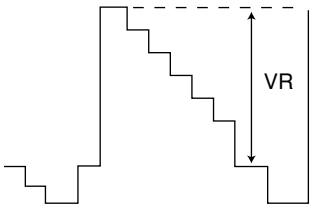
1. Select Video.
2. Input NTSC 3.58 Color Bar to TV Set.
3. Set the following condition:
   Pic: 100%, Col: 50%, Brightness: 50%, DTE: OFF
4. Connect an oscilloscope to pin ① (B output) of CN305, A Board.
5. Set to Service Mode and YCT 00 'SHU' with [1] and [4] of the commander then adjust to VB1 = VB2 = VB3 = VB4 = with [3] and [6].
6. Then press [MUTING] → [0] to write the data.
7. Select RF.
8. Input NTSC 3.58 and repeat item no 3 and 6.



The highest level of VB1, VB2, VB3, VB4 must be aligned at the same time.
Ideal difference level between VB2 and VB3 should be within ± 110 mVpp.

PMX ADJUSTMENT

1. Select Video (Wide mode: OFF).
2. Input PAL Color Bar to TV set.
3. Set the following condition:
   Pic: 100%, Col: 50%, Brightness: 50%, DTE: OFF
4. Connect an oscilloscope to pin ③ (R output) of CN305, A Board.
5. Set to Service Mode and SAJ 00 'PMX' with [1] and [4] of the commander then adjust to VR within spec with [3] and [6].
6. Then press [MUTING] → [0] to write the data.
7. Select "Wide" mode, write the "SAME DATA- 5 STEPS".



VR = 2.35 Vpp
(Difference is within 50 mVpp)

VP 06 RLM : 03H
17 R ON : 01H
18 G ON : 00H
19 B ON : 00H
After adjustment, these adjustment parameters must be recovered to the original condition.

4-5. DISPLAY POSITION ADJUSTMENT (not used for this model)

PIP POSITION

1. Input a PAL color-bar.
2. Press PIP button of the remote commander to set the PIP picture.
3. Set to Service Mode.
4. Use [1] and [4] of the remote commander to select PIP 03 "HPS" and use [3] and [6] to set data "15".
5. Select PIP 04 "VPS" to set data "2E".
6. Press [MUTING] → [0] of the remote commander to write the data.
7. Use the screen display menu changing the PIP position to check the PIP position.

4-6. DEFLECTION ADJUSTMENT

NORMAL MODE (50Hz)

1. Set Video Mode.
2. Using the [1] and [4] button, select category GEO (Service Mode).
3. Raise/lower the data using the [3] and [6] buttons. Select and adjust the following items to obtain optimum image.

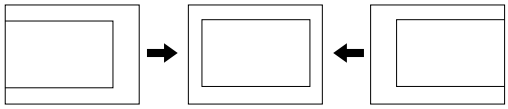
Service Item

GEO :	00	HPS	H POSITION
	01	HSZ	H SIZE
	02	PAP	PIN AMP
	03	TLT	TILT
	04	VPS	V POSITION
	05	VSZ	V SIZE
	06	SCO	S CORRECTION
	07	VLN	V LINEARITY
	08	BOW	AFC BOW
	09	AGL	AFC ANGLE
	0A	UPN	UPPER CORNER PIN
	0B	LPN	LOWER CORNER PIN

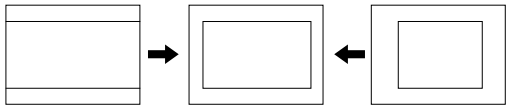
4-7. PICTURE DISTORTION ADJUSTMENT (1)

Item Number 00 – 0B

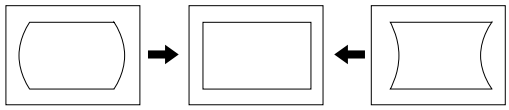
GEO 0 HPS (H POSITION)



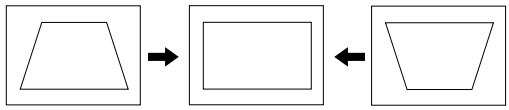
GEO 1 HSZ (H SIZE)



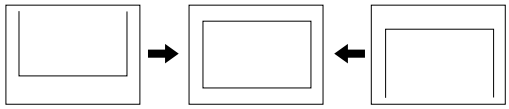
GEO 2 PAP (PIN AMP)



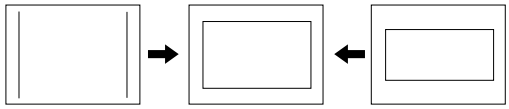
GEO 3 TLT (TRAPEZIUM)



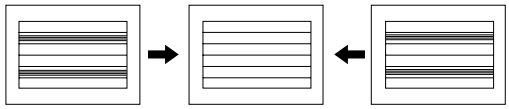
GEO 4 VPS (V POSITION)



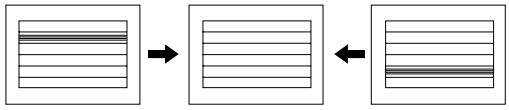
GEO 5 VSZ (V SIZE)



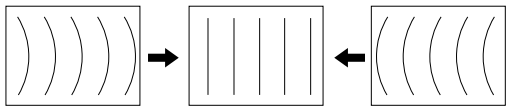
GEO 6 SCO (VERTICAL S-Correction)



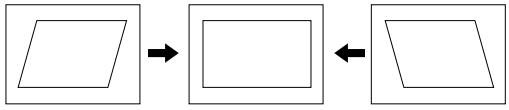
GEO 7 VLN (V LINEARITY)



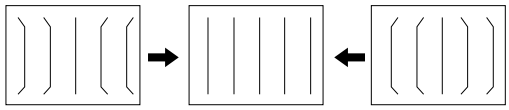
GEO 8 BOW (AFC. BOW)



GEO 9 AGL (AFC. ANGLE)

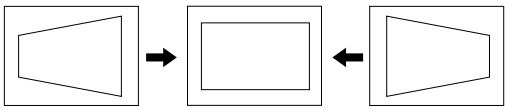


GEO 0A UPN (UPPER CORNER PIN)
GEO 0B LPN (LOWER CORNER PIN)



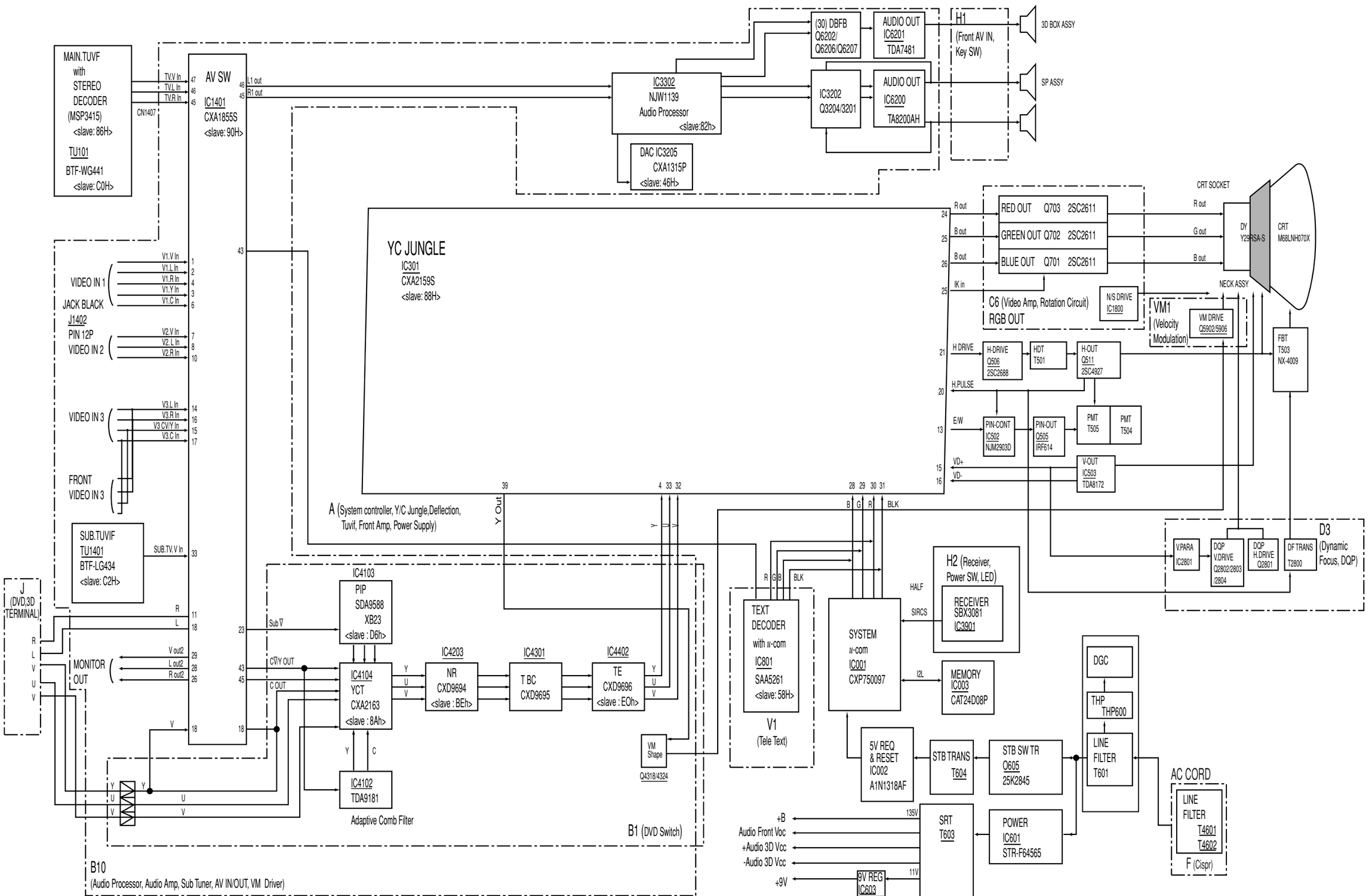
PICTURE DISTORTION ADJUSTMENT (2)

H-TRAPEZOID (DAC 4 HTR)

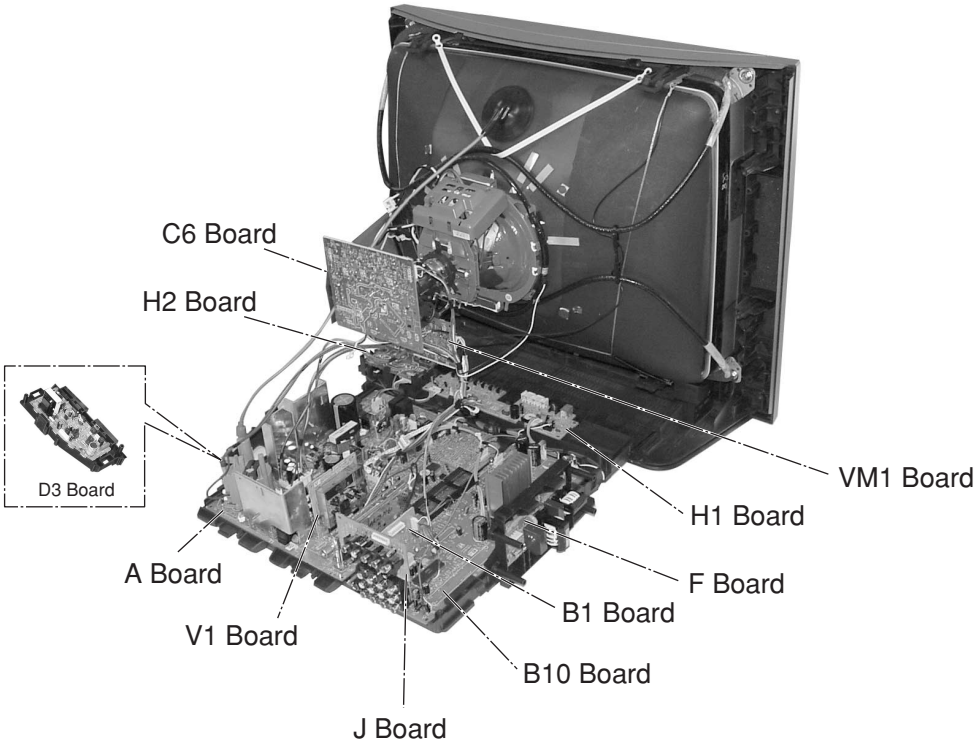


SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAM



5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAM

Note:

- All capacitors are in µF unless otherwise noted.
- All electrolytic capacitors are rated at 50V unless otherwise noted.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000kΩ
- Indication of resistance which does not have rating electrical power is as follows.

  Pitch: 5 mm
  Rating electrical power 1/4W (CHIP: 1/10W)

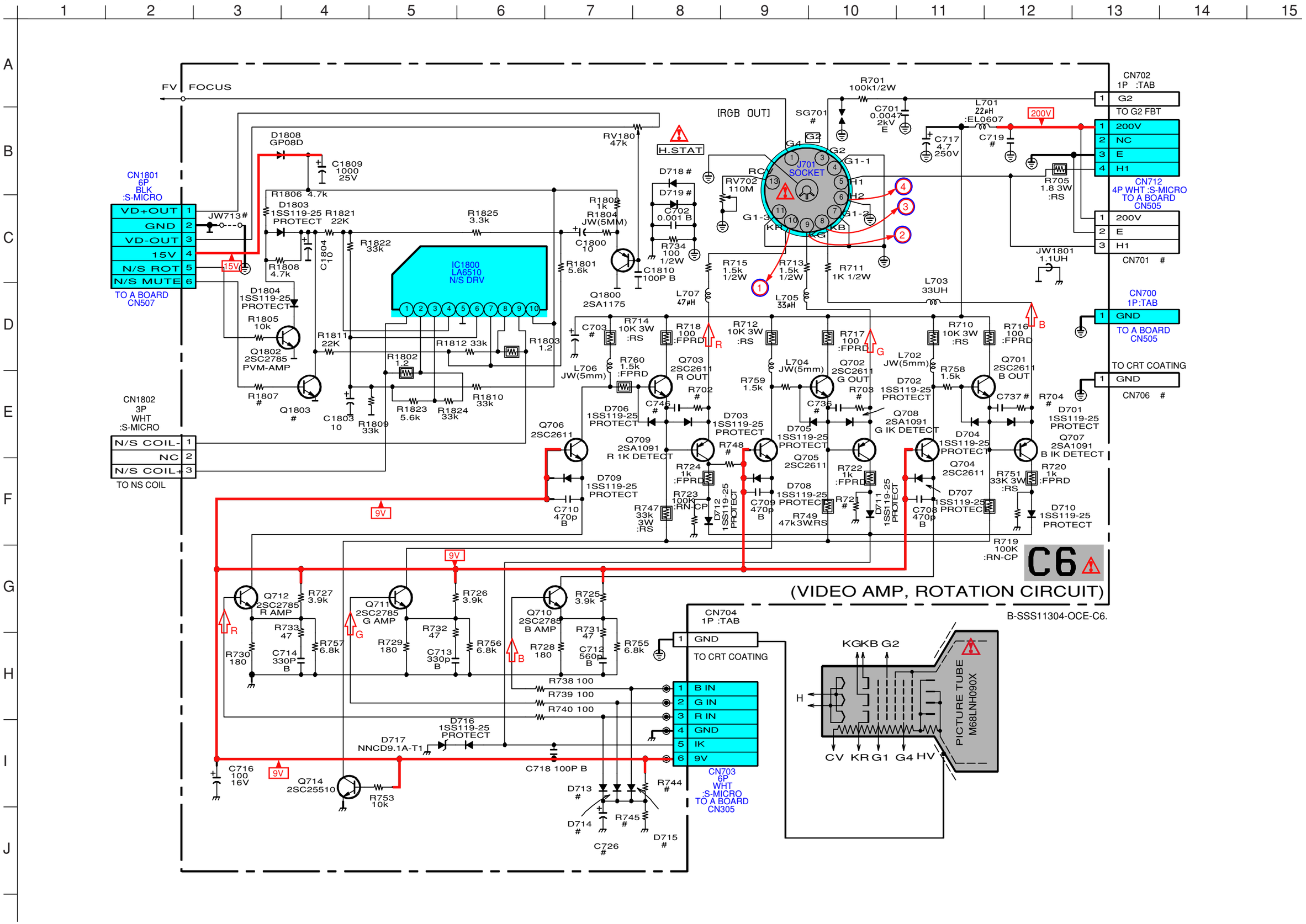
- : nonflammable resistor.
- △ : internal component.
- : panel designation or adjustment for rrepair.
- All variable and adjustable resistors have characteristic curve B unless otherwise noted.
- **Redings are taken with a color-bar signal input.**
  no mark : Common
  ( ) : PAL
  [ ] : NTSC 3.58
- **Readings are taken with a 10MΩ digital multimeter.**
- **Voltage are dc with respect to ground unless otherwise noted.**
- **Voltage variations may be noted due to normal production tolerances.**
- **All voltage are in V.**
- **✻ : Cannot be measured.**
- **Circled numbers are waveform references.**
- **: B +bus.**
- **: B –bus.**
- **: signal path.**

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ✻	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The component identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

(1) C6 Board Schematic Diagram



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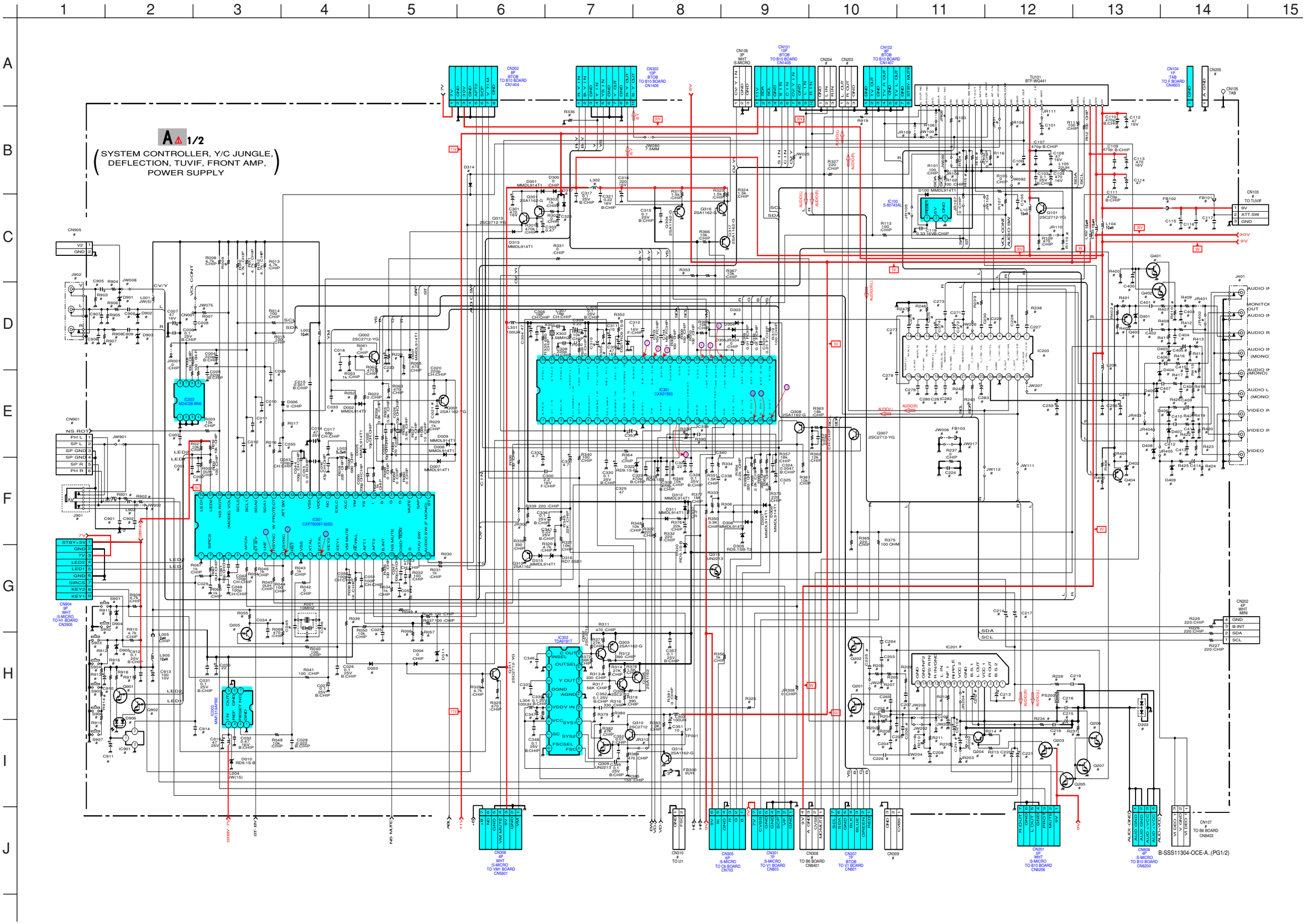
(2) A Board Schematic Diagrams

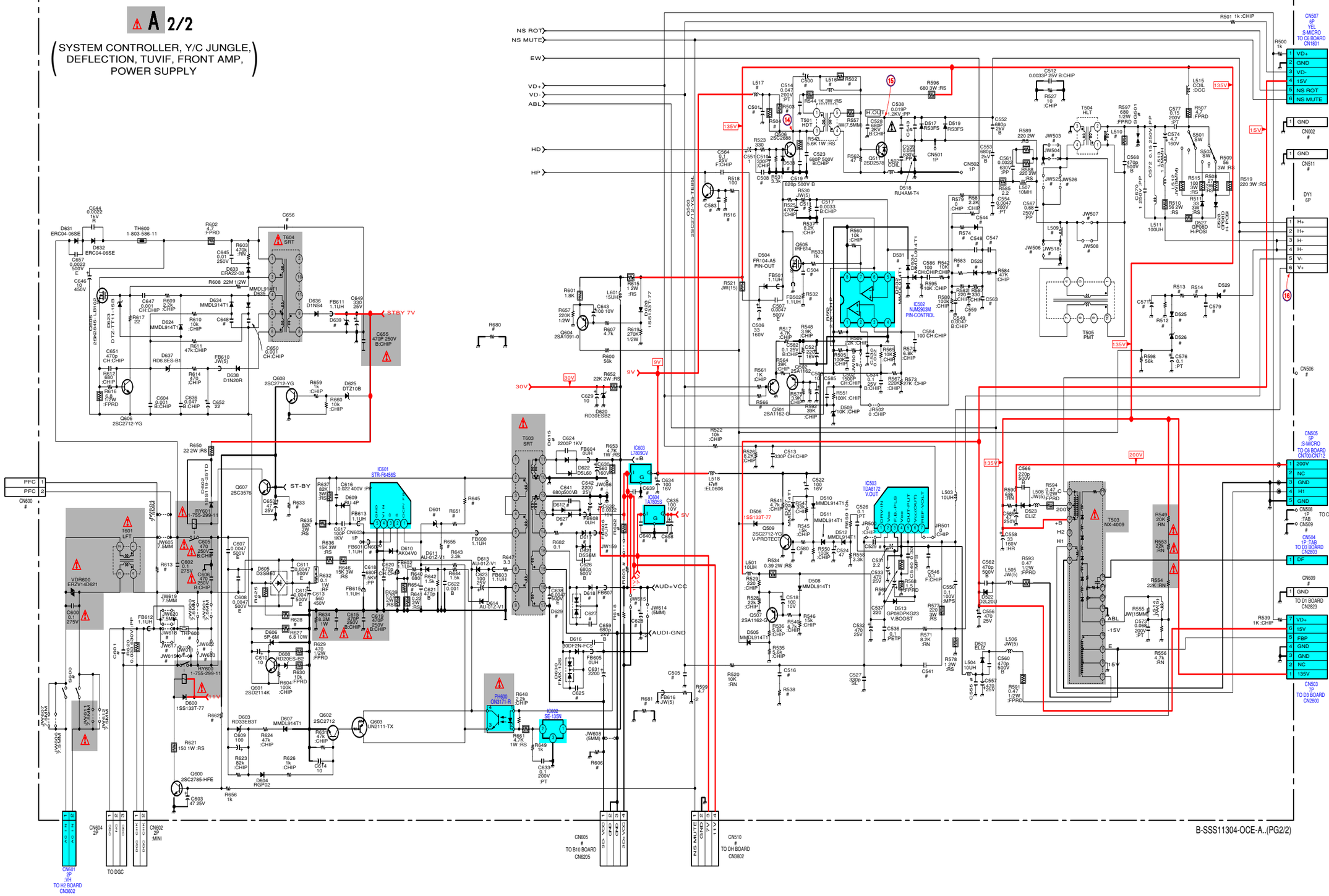


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A B C D E F G H I J

⚠A 2/2

(SYSTEM CONTROLLER, Y/C JUNGLE, DEFLECTION, TUVIF, FRONT AMP, POWER SUPPLY)



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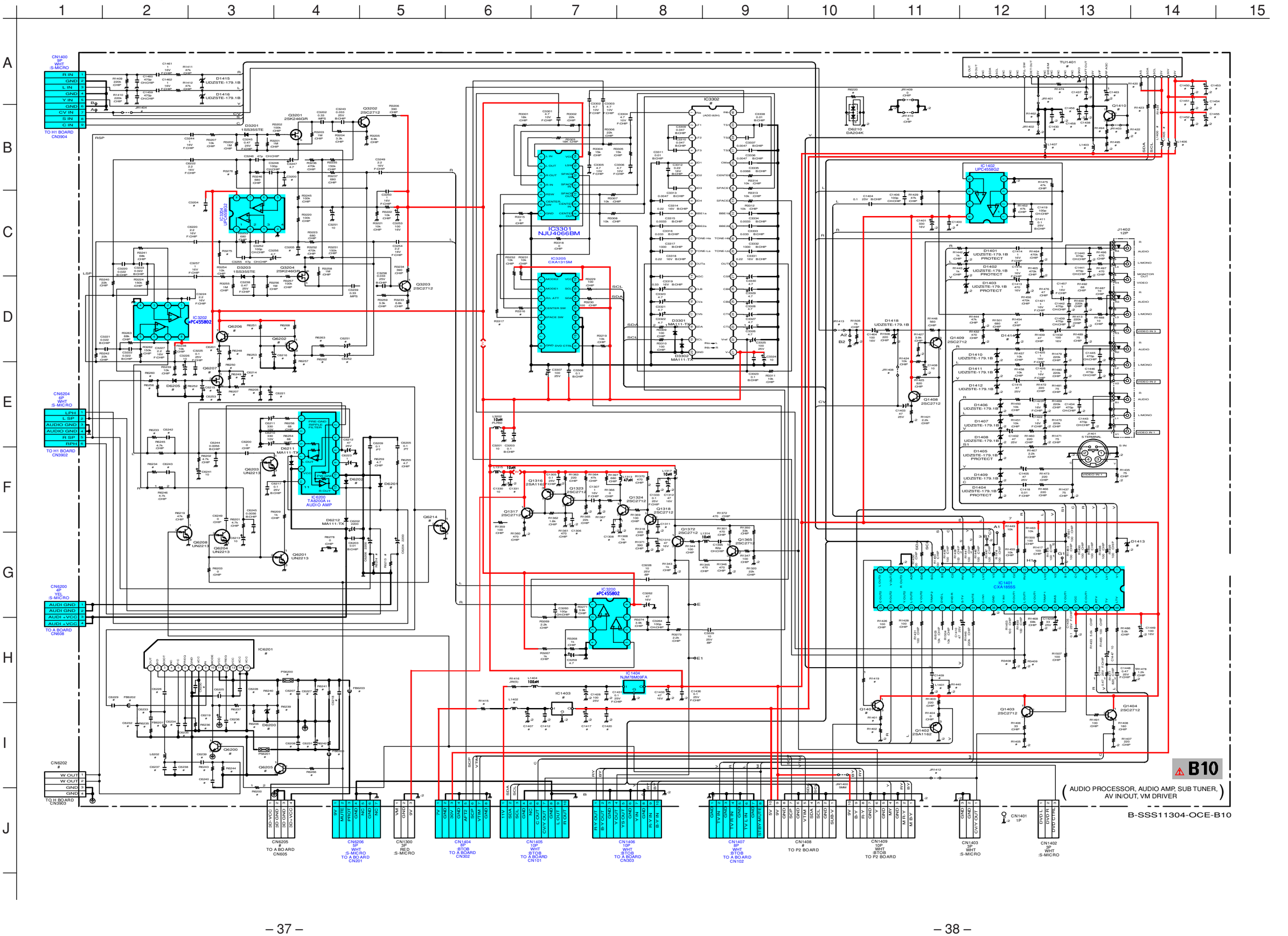
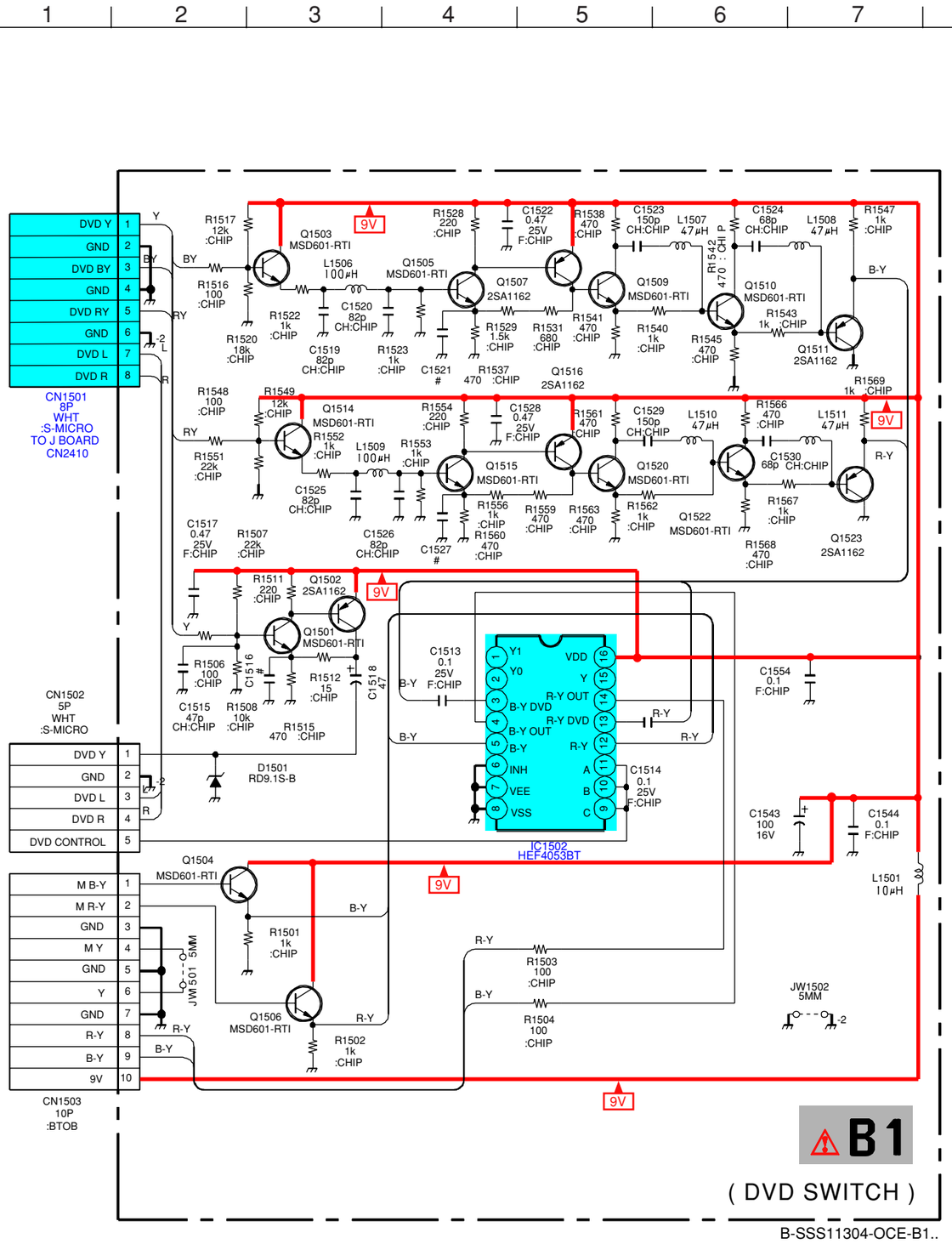
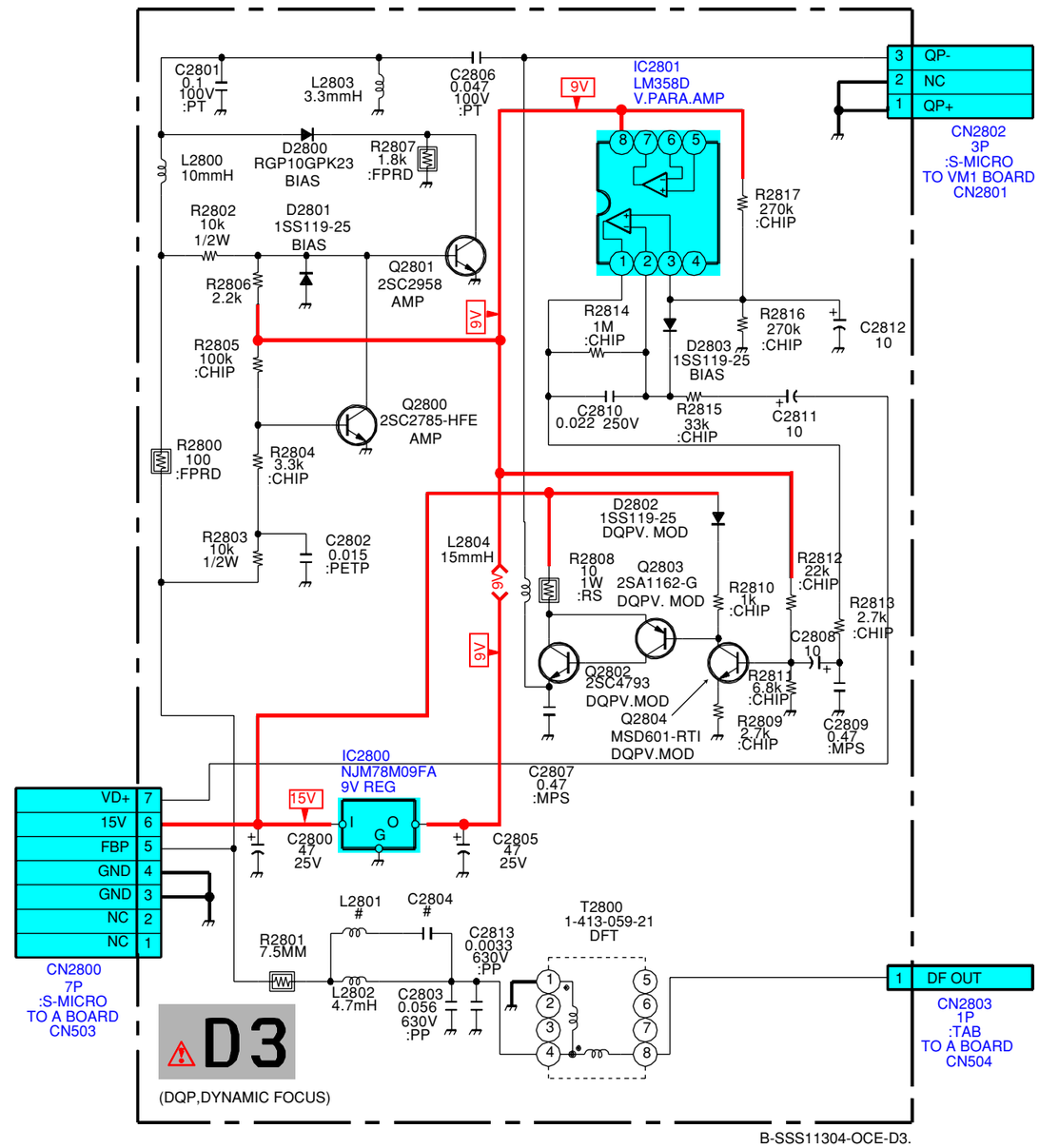
(3) B10 Board Schematic Diagram



(4) B1 and D3 Boards Schematic Diagrams





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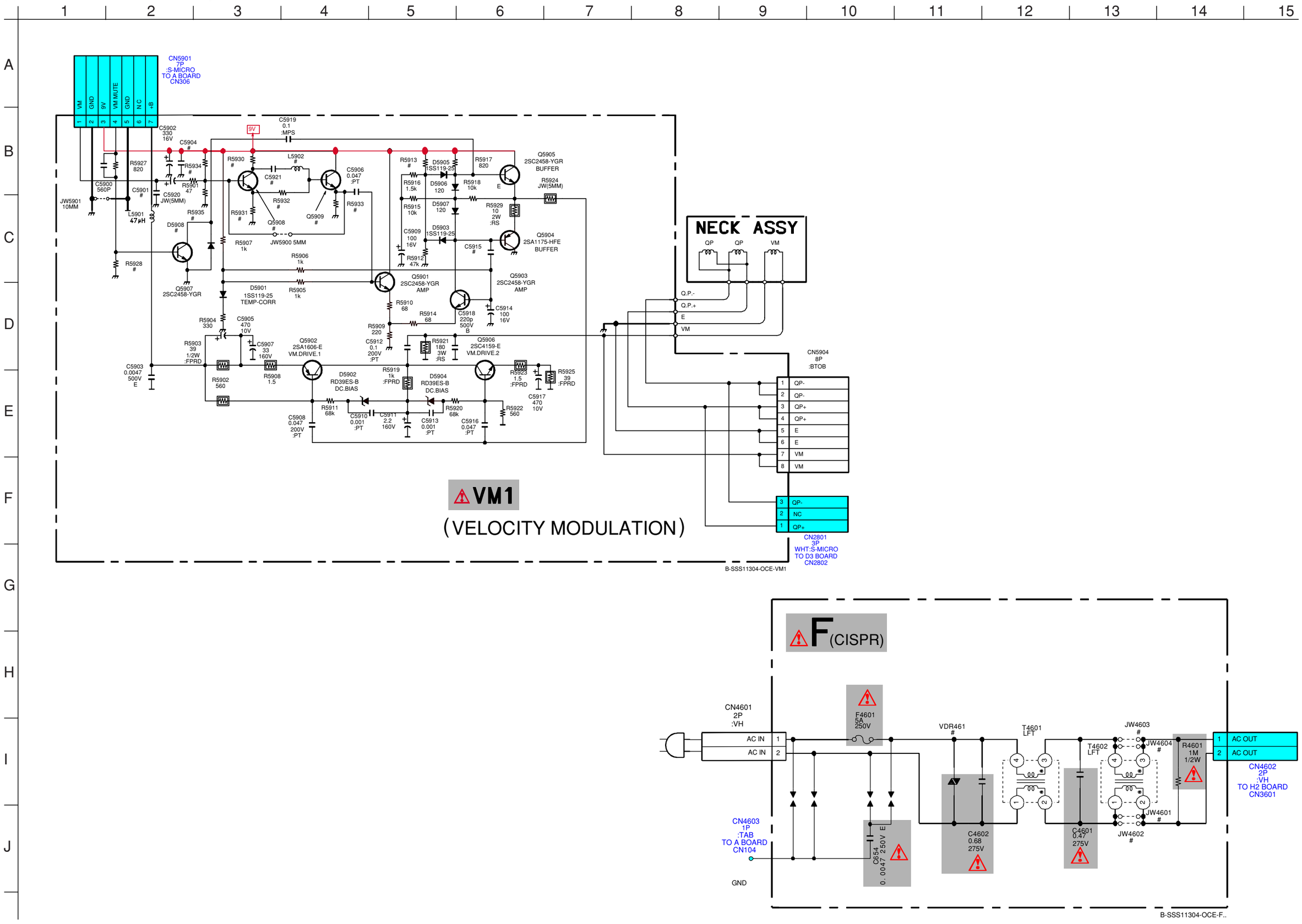
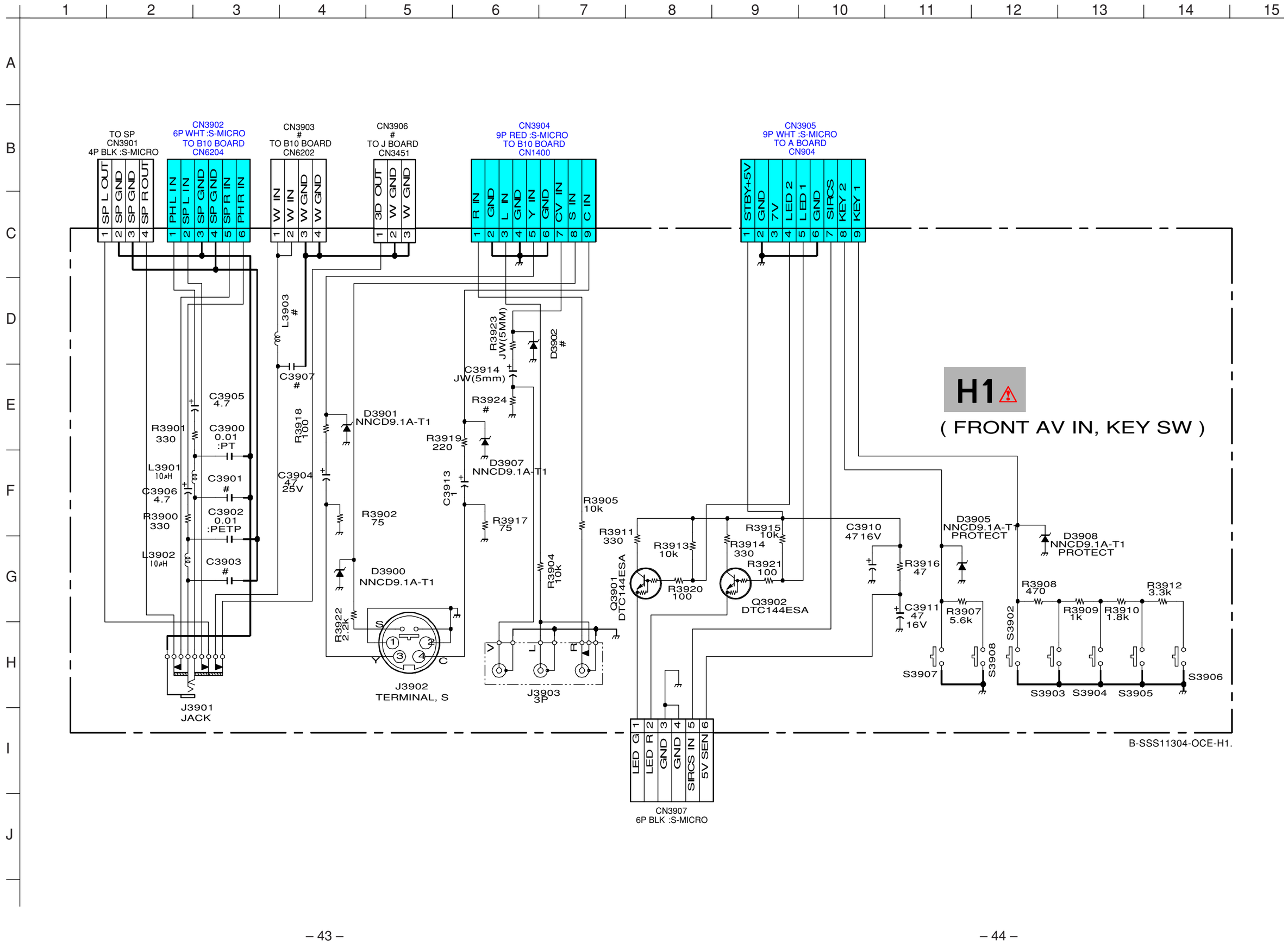
(5) F and VM1 Boards Schematic Diagrams



(6) H1 Board Schematic Diagram



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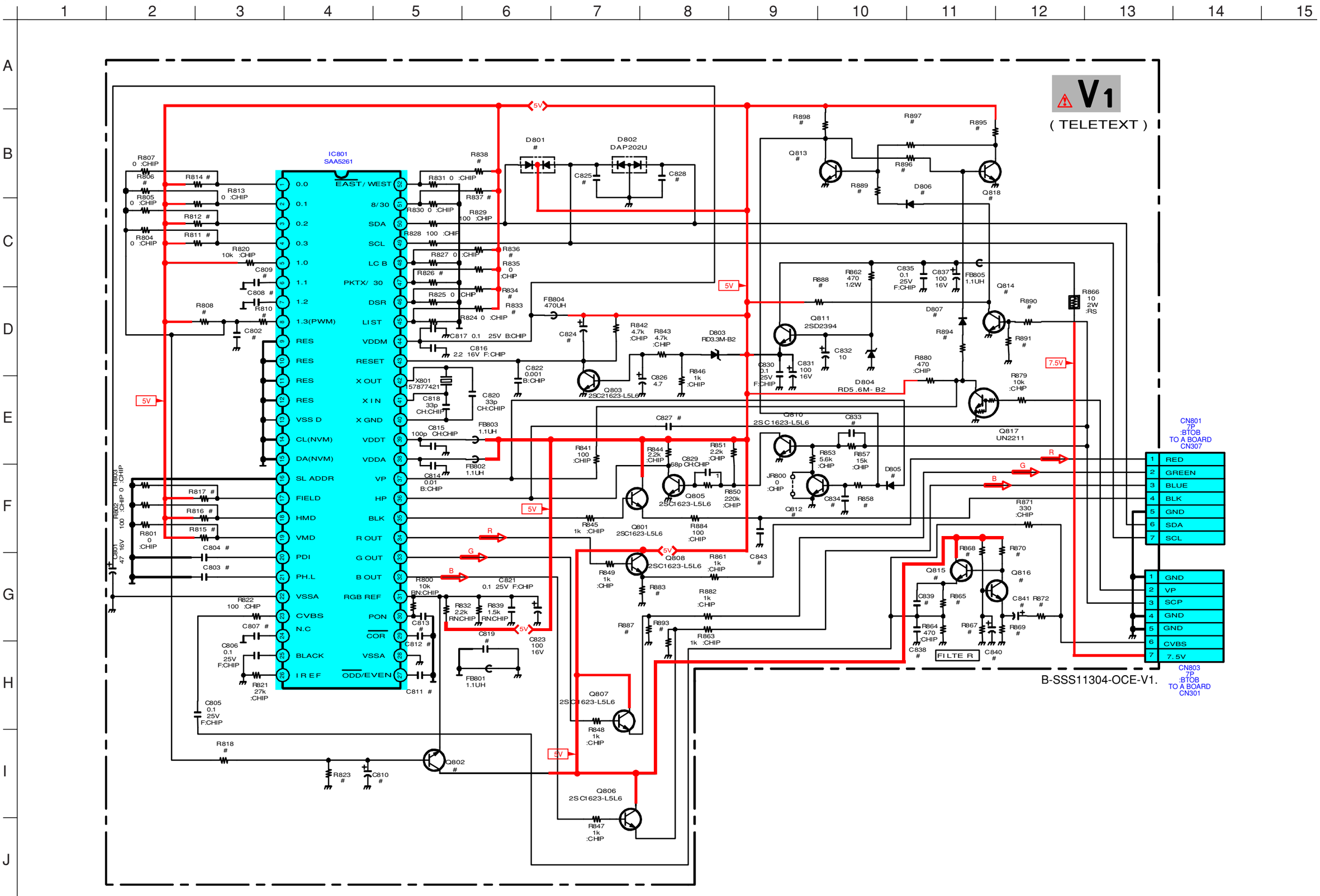
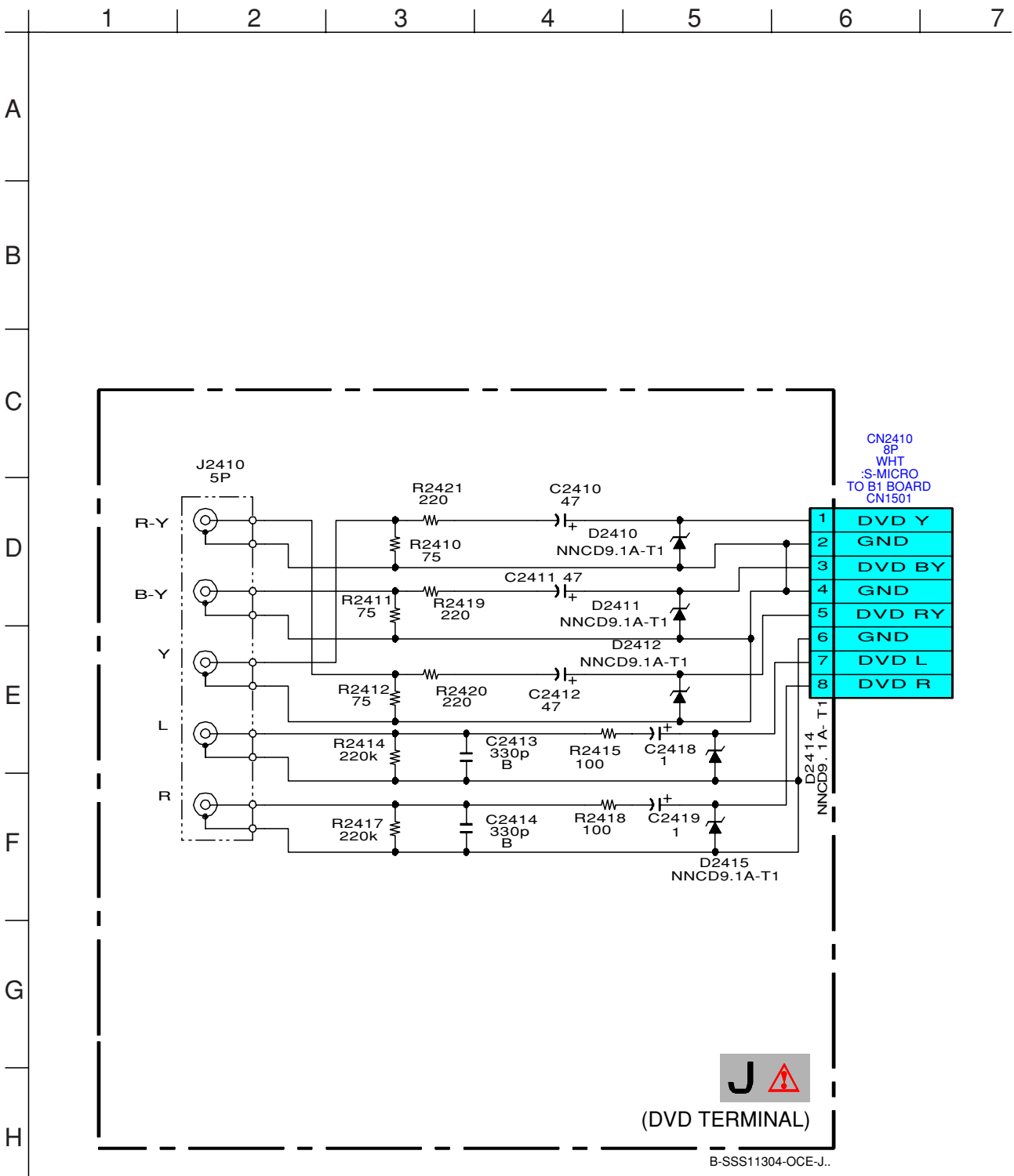
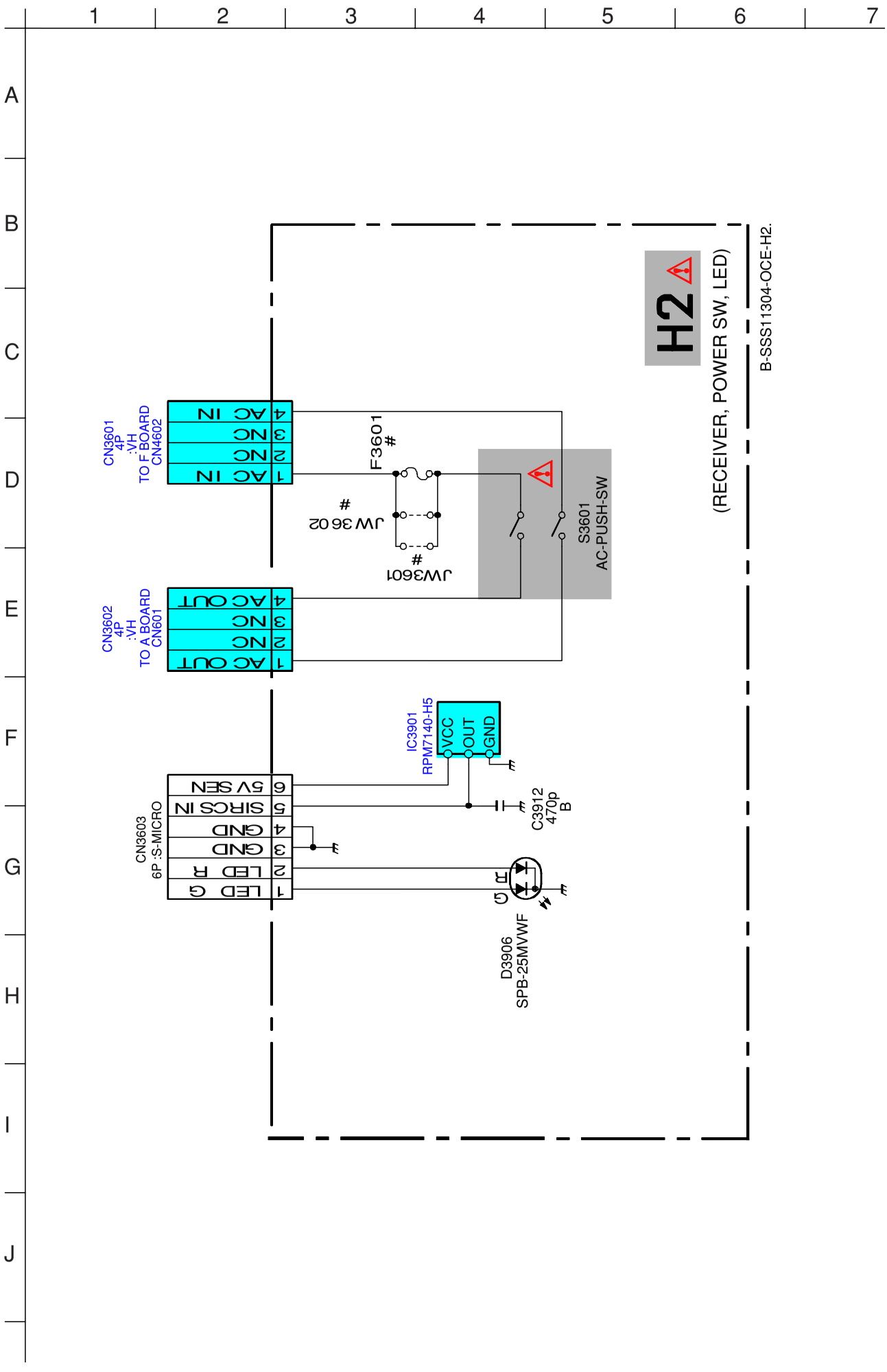
(7) V1 Board Schematic Diagram



(8) J Board Schematic Diagram

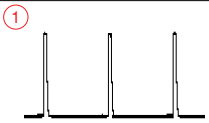
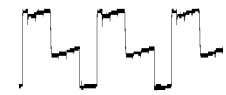
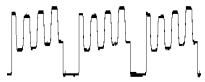
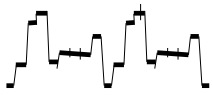
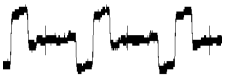


(9) H2 Board Schematic Diagram



5-4. VOLTAGE LIST AND WAVEFORM

A BOARD VOLTAGE LIST AND WAVEFORM

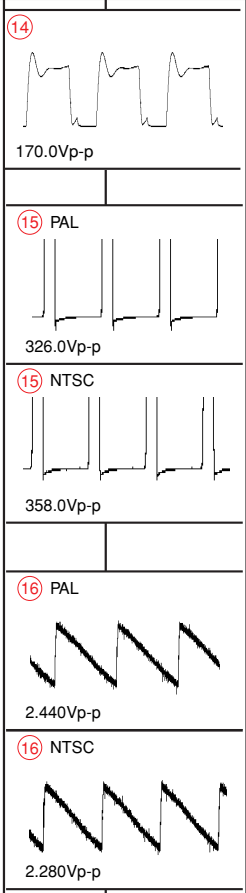
Ref	Pin No.	Voltage[v]
IC001	1	0
	2	0
	3	0.3
	4	0.3
	5	4.9
	6	4.9
	7	3.8
	8	4.7
	9	0
	①  5.120Vp-p	
	10	4.7
	② 4.880Vp-p	
	11	(0)[4.9]
	12	0
	13	(0)[2.1]
	14	2.1
	③ PAL 3.760Vp-p	
	③ NTSC 3.520Vp-p	
	15	4.9
	16	4.9
	17	0
	18	4.4
	19	(1.9)[2.5]
	20	1.6
	21	4.9
	22	0
	23	4.9
	24	0.3
	25	4.8
	26	4.9
	27	4.8
	28	4.9
	29	4.8
	30	0
	31	0
	32	0
	33	4.9
	34	0
	35	0
	36	(2.3)[2.5]
	37	2.5
	38	4.8
	39	4.9
	40	0
	41	0
	42	0.3
	43	0
	44	4.9
	45	4.9
	46	(4.3)[4.6]
	47	4.9
	48	4.4
	49	0
	50	(1.6)[2.2]
	51	0
	52	(4.7)[0]
IC002	1	0
	2	4.9
	3	4.9
	4	7.2
	5	4.9
	6	0
	7	0
IC003	1	0
	2	0
	3	0
	4	0
	5	4.9
	6	4.9
	7	0
	8	4.9
IC100	1	4.8
	2	4.8
	3	0
IC301	1	3.3
	2	5.0
	3	(0)[1.2]
	4	5.0
	5	4.8
	6	4.3
	7	0
	8	3.8
	9	5.0
	10	3.7
	11	5.0
	12	0
	13	3.6
	14	2.4
	15	3.5
	16	3.4
	⑬ 1.3Vp-p	
	17	5.4
	18	7.6
	19	0.7
	20	3.5
	21	*
	22	3.8
	23	3.5
	24	1.9
	⑩ PAL 4.000Vp-p	
	⑩ NTSC 4.160Vp-p	
	25	1.9
	⑪  3.760Vp-p	
	26	1.9
	⑫  4.080Vp-p	
	27	0
	28	4.4
	29	4.4
	30	4.4
	31	8.7
	32	4.1
	⑥ 0.2Vp-p	
	33	4.1
	⑤  1.1Vp-p	
	34	3.5
	④ 880.0mVp-p	
	35	8.7
	36	4.4
	37	(4.6)[4.4]
	38	4.6
	39	4.6
	⑨ 920.0mVp-p	
	40	5.1
	⑧  1.160Vp-p	
	41	5.1
	⑦ PAL 1.520Vp-p	
	⑦ NTSC 1.400Vp-p	

A BOARD VOLTAGE LIST AND WAVEFORM

Ref	Pin No.	Voltage[v]
	42	0
	43	5.0
	44	4.7
	45	6.6
	46	5.0
	47	8.8
	48	0
	49	4.3
	50	0
	51	(0)[2.7]
	52	(3.1)[0]
IC302	1	(0.3)[0.6]
	2	0
	3	0.5
	4	0
	5	0.1
	6	0
	7	2.9
	8	0
	9	0
	10	(0)[2.2]
	11	2.1
	12	(0)[2.2]
	13	0
	14	0.2
	15	0
	16	0
IC502	1	0.9
	2	3.5
	3	(0)[1.8]
	4	0
	5	2.9
	6	2.4
	7	6.9
	8	8.9
IC503	1	1.5
	2	13.1
	3	13.3
	4	14.7
	5	0.5
	6	13.2
	7	1.5
IC601	1	1.9
	2	0
	3	187.7
	4	16.9
	5	0
IC602	1	76.3
	2	68.5
	3	(*)[0]
IC603	I	12.0
	G	0
	O	8.9
IC604	I	7.8
	G	0
	O	0
PH600	1	72.5
	2	71.6
	3	3.3
	4	16.9
Q001	B	4.9
	C	0
	E	(0.8)[1.1]
Q002	B	0
	C	4.9
	E	0
Q101	B	2.5
	C	8.8
	E	1.9

Ref	Pin No.	Voltage[v]
Q301	B	12.0
	C	0
	E	11.8
Q302	B	0.5
	C	8.7
	E	0
Q303	B	8.7
	C	0
	E	8.8
Q304	B	3.5
	C	0
	E	4.2
Q305	B	8.7
	C	0
	E	8.8
Q306	B	0.5
	C	8.6
	E	0
Q308	B	3.6
	C	0.3
	E	0.8
Q309	B	2.9
	C	0
	E	0
Q310	B	0.4
	C	2.2
	E	0
Q311	B	0
	C	8.9
	E	0
Q312	B	5.1
	C	0
	E	6.6
Q313	B	0
	C	11.8
	E	0
Q314	B	0.17
	C	0
	E	2.2
Q315	B	0
	C	3.5
	E	0
Q316	B	4.1
	C	0
	E	4.7
Q317	B	4.1
	C	0
	E	4.7
Q501	B	3.4
	C	0
	E	4.0
Q502	B	4.2
	C	2.3
	E	4.0
Q503	B	0
	C	3.6
	E	0
Q505	S	0
	G	*
	D	*
Q506	B	0.5
	C	*
	E	0
Q507	B	12.5
	C	0.3
	E	13.1
Q509	B	0.6
	C	0
	E	0

Ref	Pin No.	Voltage[v]
Q511	B	0.8
	C	0
	E	0
Q600	B	0
	C	12.2
	E	0
Q601	B	0.7
	C	0.3
	E	0.3
Q602	B	0.1
	C	16.8
	E	0.1
Q603	B	16.8
	C	3.3
	E	16.9
Q604	B	133.8
	C	0
	E	134.0
Q605	S	0.6
	G	0.2
	D	(266.3)[257]
Q606	B	0.1
	C	0.2
	E	0.6
Q607	B	1.4
	C	(0.8)[1.1]
	E	1.1
Q608	B	0
	C	0.8
	E	0



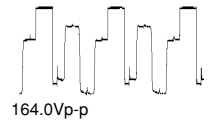
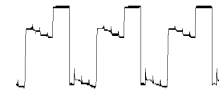
B10 BOARD VOLTAGE LIST

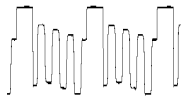
Ref	Pin No.	Voltage[v]
IC1401	1	3.8
	2	3.9
	3	3.8
	4	3.9
	5	3.8
	6	8.2
	7	3.8
	8	3.9
	9	3.8
	10	3.9
	11	3.8
	12	8.2
	13	3.9
	14	3.9
	15	3.8
	16	3.9
	17	3.8
	18	8.1
	19	4.3
	20	4.4
	21	0
	22	3.9
	23	3.8
	24	3.9
	25	3.8
	26	3.9
	27	3.8
	28	3.9
	29	3.8
	30	3.8
	31	3.9
	32	3.9
	33	3.8
	34	0
	35	3.8
	36	0
	37	3.8
	38	3.9
	39	3.9
	40	3.8
	41	3.8
	42	3.9
	43	3.7
	44	8.8
	45	3.8
	46	3.9
	47	3.9
	48	3.8
IC1402	1	4.9
	2	2.5
	3	2.5
	4	0
	5	8.8
	6	5.0
	7	2.5
	8	2.5
IC1404	I	12.1
	G	0
	O	8.8
IC3200	1	4.4
	2	4.4
	3	4.4
	4	0
	5	4.4
	6	4.4
	7	4.4
	8	8.9
IC3202	1	4.4
	2	4.4
	3	4.4
	4	0
	5	4.4
	6	4.4
	7	4.4
	8	8.9

Ref	Pin No.	Voltage[v]
IC3204	1	4.5
	2	4.5
	3	4.4
	4	0
	5	4.4
	6	4.5
	7	4.5
	8	8.8
IC3205	1	8.8
	2	0.1
	3	0.4
	4	0.4
	5	0.4
	6	0.4
	7	0.3
	8	0
	9	0.1
	10	2.4
	11	0
	12	0
	13	8.7
	14	4.4
	15	4.4
	16	8.8
IC3301	1	2.7
	2	2.6
	3	3.0
	4	3.0
	5	0.4
	6	0
	7	0
	8	0
	9	4.5
	10	4.5
	11	4.5
	12	0
	13	0.4
	14	8.8
IC3302	1	4.4
	2	4.5
	3	4.5
	4	4.5
	5	4.5
	6	4.5
	7	4.5
	8	4.5
	9	4.5
	10	4.4
	11	4.4
	12	4.5
	13	4.5
	14	1.5
	15	1.7
	16	2.7
	17	2.7
	18	4.4
	19	*
	20	0
	21	8.9
	22	4.5
	23	2.5
	24	2.1
	25	2.1
	26	2.1
	27	2.0
	28	4.5
	29	4.4
	30	4.3
	31	4.4
	32	4.5
	33	4.4
	34	4.5
	35	4.5
	36	4.4
	37	4.4
	38	4.5

Ref	Pin No.	Voltage[v]
	39	4.4
	40	4.4
IC6200	1	1.5
	2	0
	3	0
	4	0
	5	1.6
	6	8.7
	7	12.3
	8	5.0
	9	25.8
	10	0
	11	4.2
	12	12.0
Q1316	B	8.8
	C	4.6
	E	8.2
Q1317	B	3.9
	C	8.7
	E	4.6
Q1318	B	3.5
	C	6.1
	E	4.2
Q1323	B	2.0
	C	8.2
	E	2.7
Q1324	B	5.4
	C	8.8
	E	6.1
Q1365	B	3.5
	C	5.3
	E	4.2
Q1372	B	2.8
	C	8.8
	E	3.5
Q1401	B	0
	C	8.8
	E	0
Q1402	B	4.5
	C	0
	E	3.8
Q1403	B	3.1
	C	8.8
	E	3.7
Q1404	B	3.2
	C	8.8
	E	3.8
Q1408	B	5.2
	C	8.8
	E	5.8
Q1409	B	1.8
	C	5.8
	E	2.5
Q3201	S	4.4
	G	4.2
	D	4.3
Q3202	B	3.6
	C	8.6
	E	4.1
Q3203	B	3.6
	C	8.6
	E	4.1
Q3204	S	3.6
	G	4.0
	D	4.4
Q6201	B	0
	C	4.2
	E	0
Q6206	B	0
	C	8.8
	E	0
Q6208	B	0
	C	8.6
	E	0

C6 BOARD VOLTAGE LIST AND WAVEFORM

Ref	Pin No.	Voltage[v]
IC1800	1	6.4
	2	6.4
	3	6.4
	4	6.4
	5	0
	6	6.4
	7	6.4
	8	6.3
	9	6.3
	10	12.7
J701	KR	(135)[132]
	①  164.0Vp-p	
	KG	(135)[*]
	②  160.0Vp-p	

Ref	Pin No.	Voltage[v]
	KB	(136)[*]
	③  170.0Vp-p	
	H2	(*)[0.2]
	④ 24.80Vp-p	
	G2	(266)[263]
Q701	B	*
	C	204
	E	*
Q702	B	136
	C	204
	E	*
Q703	B	(*)[131]
	C	204
	E	*
Q704	B	8.9
	C	(*)[129]
	E	8.3

Ref	Pin No.	Voltage[v]
Q705	B	8.9
	C	*
	E	8.3
Q706	B	8.9
	C	*
	E	8.4
Q707	B	*
	C	5.6
	E	*
Q708	B	*
	C	(5.7)[6.1]
	E	*
Q709	B	*
	C	(5.1)[5.6]
	E	(*)[132]
Q710	B	(1.9)[2.0
	C	8.3
	E	1.5
Q711	B	1.9
	C	8.3
	E	1.5
Q712	B	1.9
	C	8.3
	E	1.5
Q714	B	0.6
	C	0.2
	E	0.01

VM1 BOARD VOLTAGE LIST

Ref	Pin No.	Voltage[v]
Q5901	B	2.6
	C	8.8
	E	(0)[2.0]
Q5902	B	135
	C	135
	E	(70)[64]
Q5903	B	2.6
	C	4.5
	E	1.9

Ref	Pin No.	Voltage[v]
Q5904	B	4.5
	C	0
	E	5.0
Q5905	B	5.5
	C	8.8
	E	5.0
Q5906	B	(0.27)[0.22]
	C	(0)[64.7]
	E	0

Ref	Pin No.	Voltage[v]
Q5907	B	0
	C	0
	E	0
Q5908	B	3.3
	C	0
	E	0
Q5909	B	0
	C	8.8
	E	3.3

D3 BOARD VOLTAGE LIST

Ref	Pin No.	Voltage[v]	Ref	Pin No.	Voltage[v]
IC2800	I	13.2	Q2801	B	(*)[0.3
	G	0		C	(3.1)[*]
	O	9.0		E	0
IC2801	1	4.4	Q2802	B	2.4
	2	4.5		C	12.7
	3	4.4		E	1.7
	4	0	Q2803	B	12.1
	5	(1.2)[1.4]		C	2.3
	6	1.2		E	12.7
	7	7.9	Q2804	B	2.0
	8	8.9		C	12.1
Q2800	B	(0.41)[*]		E	1.5
	C	*			
	E	0			

H1 AND H2 BOARDS VOLTAGE LIST

Ref	Pin No.	Voltage[v]
IC3901	1	(4.9)[4.8]
	2	(0)[4.9]
	3	(4.8)[0]
Q3901	B	0.1
	C	4.9
	E	0.2
Q3902	B	(4.7)[0]
	C	(2.4)[4.9]
	E	(2.0)[0.1]

B1 BOARD VOLTAGE LIST

Ref	Pin No.	Voltage[v]	Ref	Pin No.	Voltage[v]	Ref	Pin No.	Voltage[v]
IC1502	1	3.1	Q1502	B	2.3	Q1514	B	0.6
	2	3.0		C	2.3		C	0.6
	3	3.2		E	2.5		E	0.6
	4	4.6	Q1503	B	0.6	Q1515	B	0.6
	5	4.6		C	0.6		C	0.6
	6	0		E	0.6		E	0.6
	7	0	Q1505	B	0.6	Q1516	B	0.5
	8	0		C	0.8		C	0.5
	9	8.1		E	0		E	0.5
	10	7.9	Q1507	B	0.7	Q1520	B	0.5
	11	7.9		C	0.8		C	0.4
	12	7.6		E	0.7		E	0
	13	7.6	Q1509	B	0.8	Q1522	B	0.4
	14	7.3		C	0.8		C	0
	15	7.6		E	0		E	0.5
	16	7.6	Q1510	B	0.7	Q1523	B	0.4
Q1501	B	2.5		C	0.7		C	0
	C	2.4		E	0		E	0.5
	E	2.4	Q1511	B	0.7			
				C	0.7			
				E	0			

V1 BOARD VOLTAGE LIST

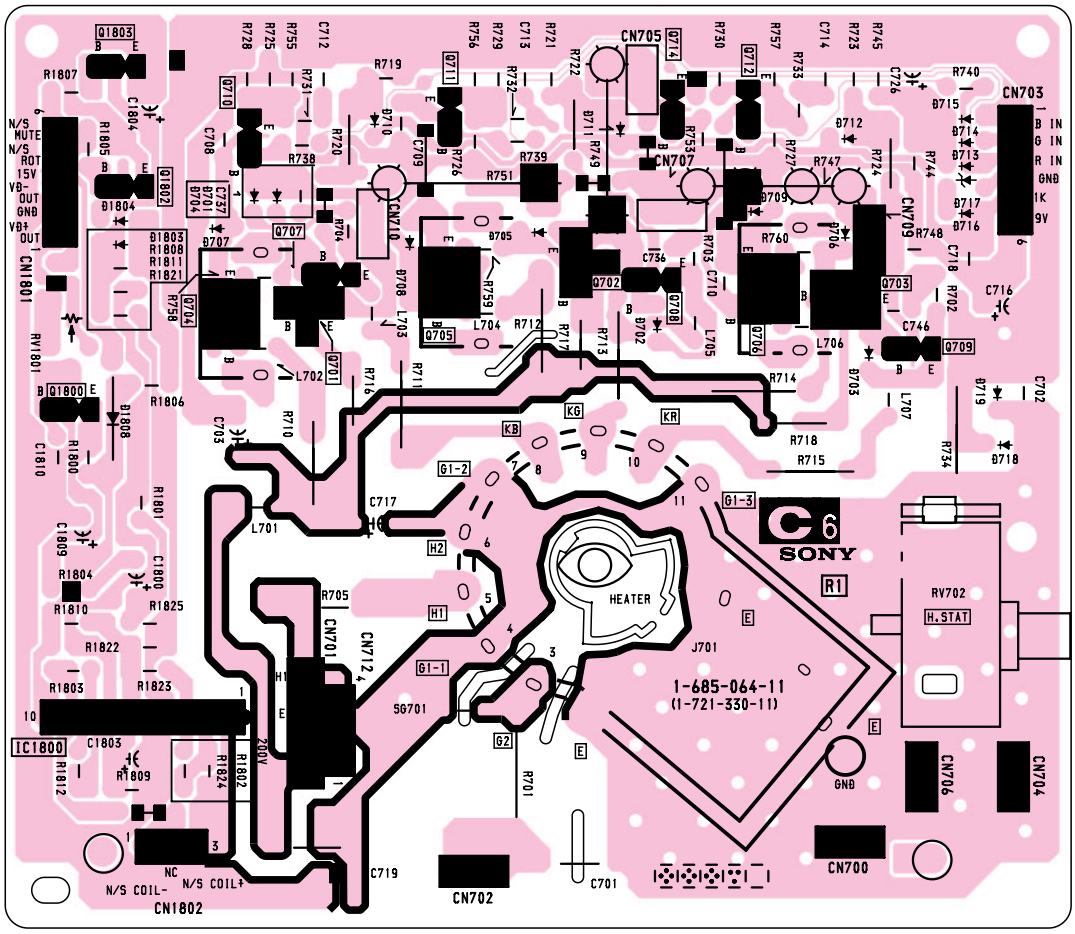
Ref	Pin No.	Voltage[v]	Ref	Pin No.	Voltage[v]	Ref	Pin No.	Voltage[v]
IC801	1	0.4		29	0.4	Q803	B	0
	2	4.9		30	2.0		C	0
	3	0.4		31	2.0		E	0.6
	4	0.4		32	0	Q805	B	0.4
	5	4.9		33	0		C	0.9
	6	4.9		34	0		E	0
	7	0		35	0	Q806	B	0
	8	0		36	0.9		C	4.9
	9	4.8		37	0.1		E	0
	10	0		38	4.9	Q807	B	0
	11	2.4		39	4.9		C	4.9
	12	2.3		40	0		E	0
	13	0		41	2.3	Q808	B	0
	14	4.9		42	2.4		C	4.9
	15	4.9		43	0		E	0
	16	0.2		44	4.8	Q810	B	0.2
	17	0.9		45	0		C	4.0
	18	0		46	0		E	0
	19	0		47	4.9	Q811	B	5.5
	20	0.5		48	0		C	6.3
	21	0.5		49	4.4		E	4.9
	22	0		50	4.5	Q817	B	2.8
	23	2.2		51	0		C	0.1
	24	0.5		52	0		E	0
	25	2.0	Q801	B	0			
	26	2.4		C	4.9			
	27	0		E	0			
	28	0						

5-5. PRINTED WIRING BOARDS AND PARTS LOCATION

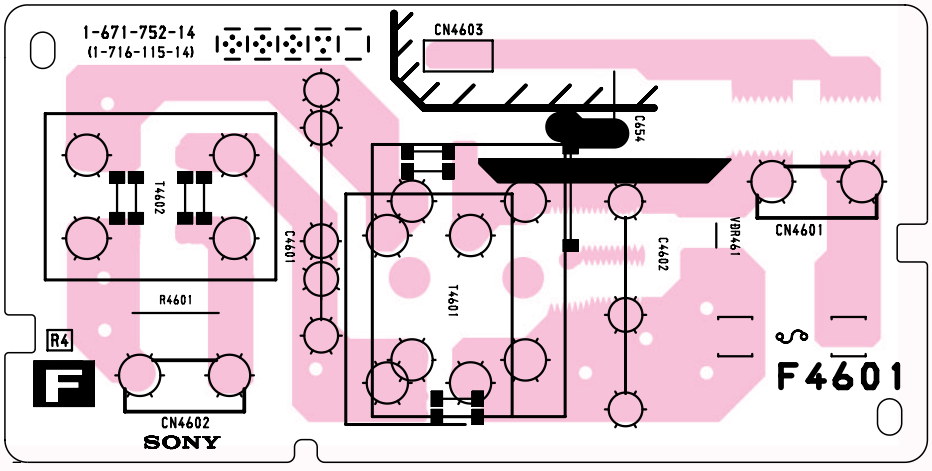
PRINTED WIRING BOARDS

C6 [VIDEO AMP, ROTATION CIRCUIT] **F** [CISPR]

– C6 Board –



– F Board –



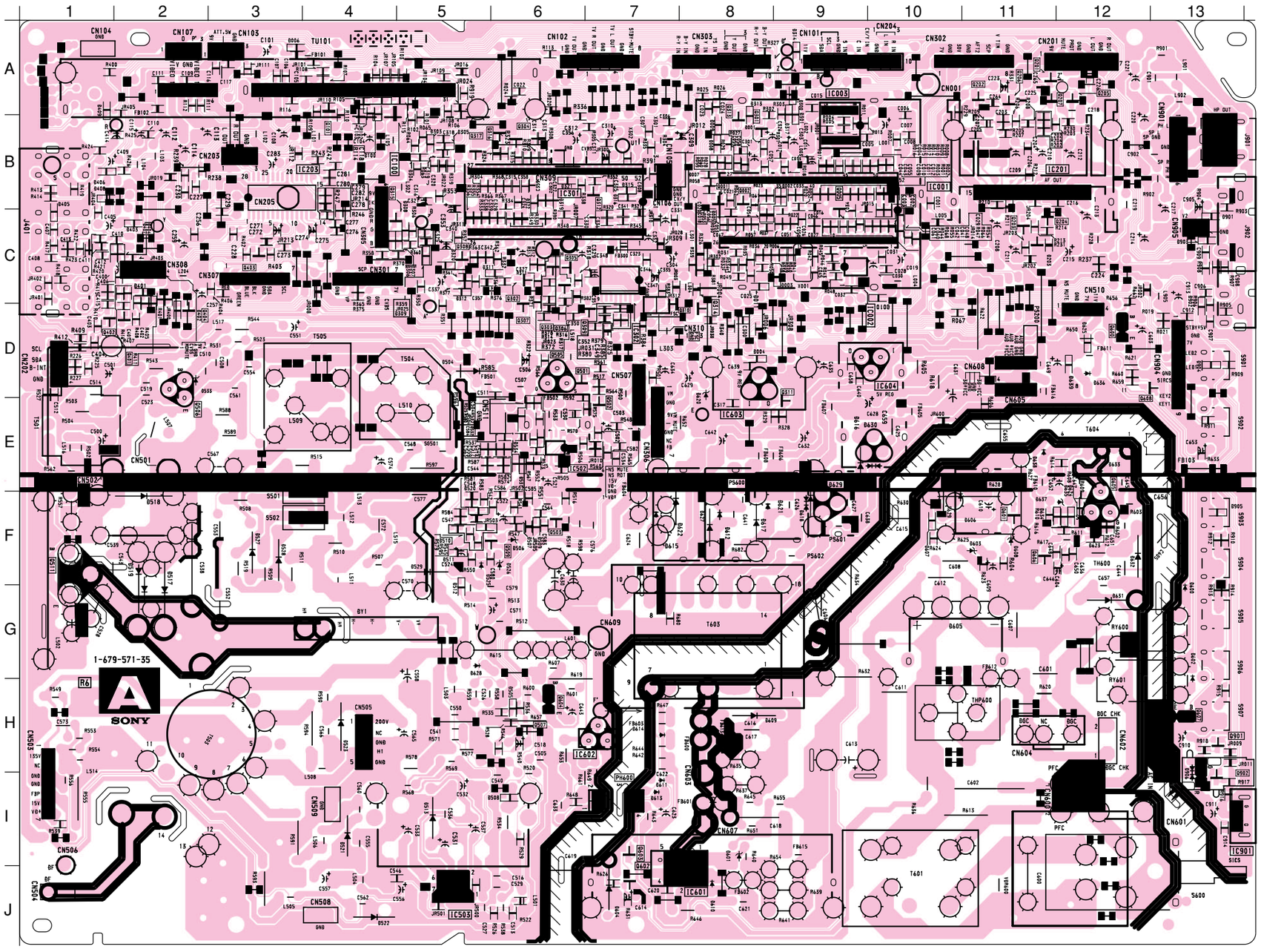
KV-AR29M31
RM-995

PRINTED WIRING BOARDS

A [SYSTEM CONTROLLER, Y/C JUNGLE, DEFLECTION, TUVIF, FRONT AMP, POWER SUPPLY]

NOTE:
The circuit indicated at left contains high voltage of over 1220 Vp-p. Please pay attention when inspecting or repairing it to prevent an electric shock.

– A Board –



A BOARD

IC

IC001	B-10
IC002	D-10
IC003	A-9
IC100	B-4
IC201	B-12
IC203	B-4
IC301	B-6
IC302	D-7
IC502	E-6
IC503	J-5
IC601	J-8
IC602	H-7
IC603	E-8
IC604	D-10
IC901	I-13

TRANSISTOR

Q001	B-8
Q002	B-8
Q003	A-9
Q005	B-9
Q101	B-4
Q201	A-11
Q202	A-11
Q203	C-11
Q204	C-12
Q205	A-12
Q206	A-11
Q207	A-12
Q301	B-8
Q302	C-6
Q303	D-6
Q304	B-6
Q305	C-6
Q306	D-6
Q307	D-6
Q308	C-5
Q309	D-6
Q310	D-8
Q311	D-9
Q312	B-7
Q313	A-8
Q314	D-8
Q315	B-4
Q316	B-5
Q317	B-5
Q401	D-2
Q402	D-1
Q403	C-3
Q404	D-2
Q501	D-6
Q502	E-7
Q503	F-6
Q505	D-6
Q506	E-2
Q507	H-6
Q509	F-6
Q511	F-1
Q600	D-12
Q601	F-11
Q602	I-7
Q603	I-7
Q604	H-6
Q605	E-12
Q606	F-11
Q607	H-13
Q608	D-12
Q901	H-13
Q902	H-13

DIODE

D001	B-8
D002	B-9
D003	C-9
D004	D-8
D005	C-8
D006	A-3
D007	B-8
D008	B-8
D009	B-8
D010	D-10
D011	C-8
D100	B-4
D203	C-11
D300	A-9
D301	B-9
D303	B-5
D304	B-5
D305	B-5
D306	C-5
D307	C-5
D308	B-5
D309	D-5
D311	C-5
D312	C-5
D313	A-8
D314	A-9
D315	B-7
D316	B-7
D317	B-9
D319	B-6
D320	C-5
D321	B-6
D322	B-6
D401	C-2
D402	D-2
D403	C-2
D404	C-2
D405	B-1
D406	B-1
D407	C-2
D408	B-1
D409	A-1
D504	D-5
D505	H-6
D506	F-6
D507	F-6
D508	I-6
D509	F-6
D510	F-5
D511	F-5
D512	G-5
D513	I-5
D517	F-2
D518	F-2
D519	F-2
D520	E-5
D521	I-4
D522	J-4
D523	H-4
D525	F-5
D526	F-6
D527	F-3
D528	F-3
D529	F-5
D531	E-6
D532	E-5
D533	D-3
D534	E-6
D600	F-13
D601	I-8
D602	G-13
D603	F-11
D604	J-7
D605	G-10
D606	F-11
D607	F-10
D608	F-11
D609	H-8
D610	J-8
D611	I-7
D612	F-8
D613	I-7
D614	H-7
D615	F-7
D616	E-9
D617	F-8
D618	F-9
D620	D-8
D621	F-9
D622	F-7
D623	F-12
D624	E-12
D625	D-12
D627	F-8
D628	G-5
D628	G-5
D629	E-9
D630	E-10
D631	G-12
D632	F-12
D633	E-12
D634	F-11
D635	E-12
D636	D-12
D637	F-11
D638	E-11
D639	D-12
D901	C-13
D902	C-13
D903	C-13
D904	D-13
D905	F-13
D906	H-13

KV-AR29M31
RM-995

PRINTED WIRING BOARDS

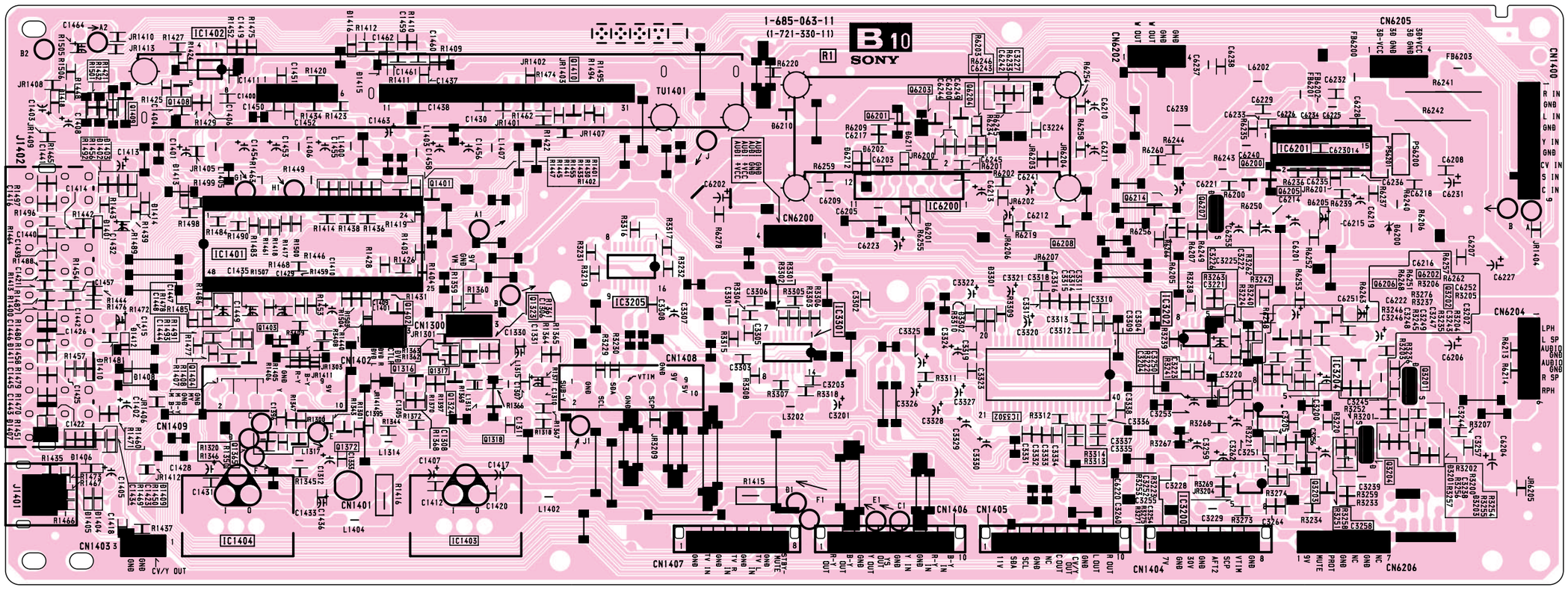
B10 [AUDIO PROCESSOR, AUDIO AMP, SUB TUNER, AV IN/OUT, VM DRIVER]

J [DVD TERMINAL]

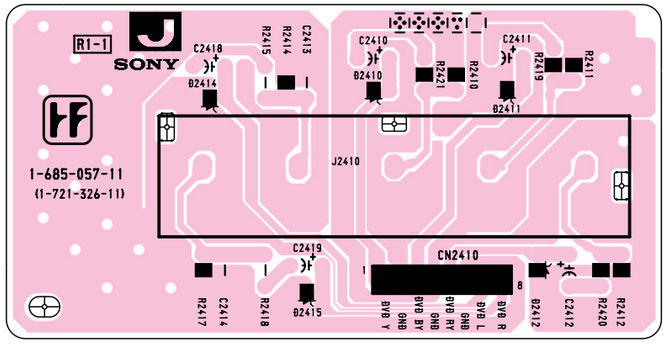
B1 [DVD, SWITCH]

V1 [TELETEXT]

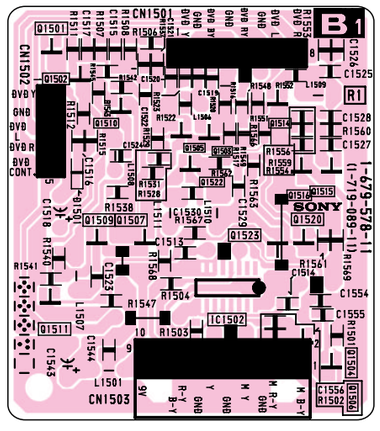
– B10 Board –



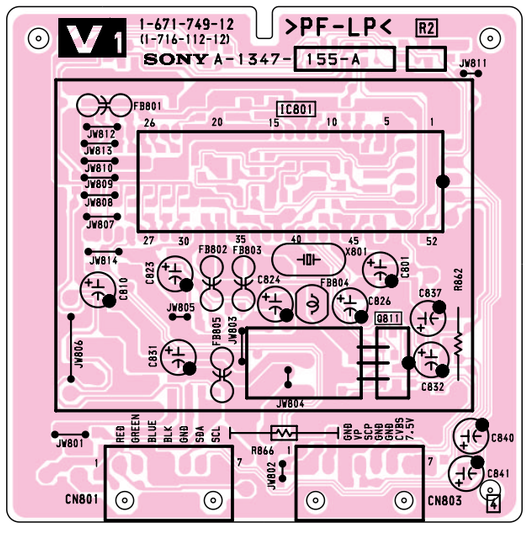
– J Board –



– B1 Board –



– V1 Board –



PRINTED WIRING BOARDS

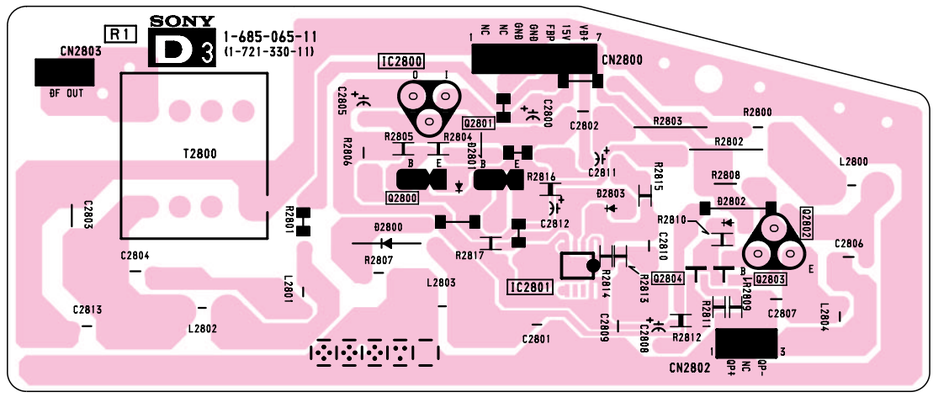
D3 [DYNAMIC FOCUS, DQP]

H1 [FRONT AV IN, KEY SW]

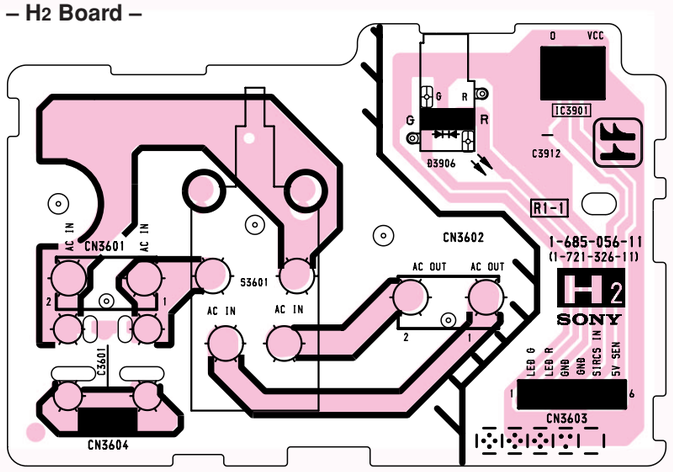
H2 [RECEIVER, POWER SW, LED]

VM1 [VELOCITY MODULATIONM]

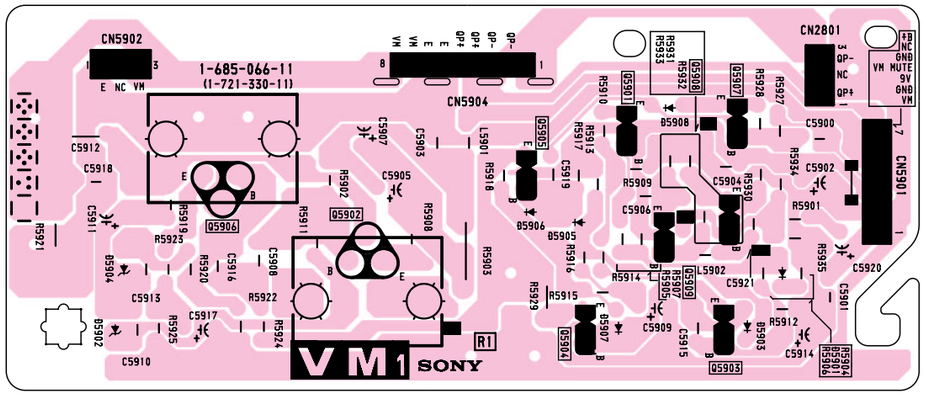
– D3 Board –



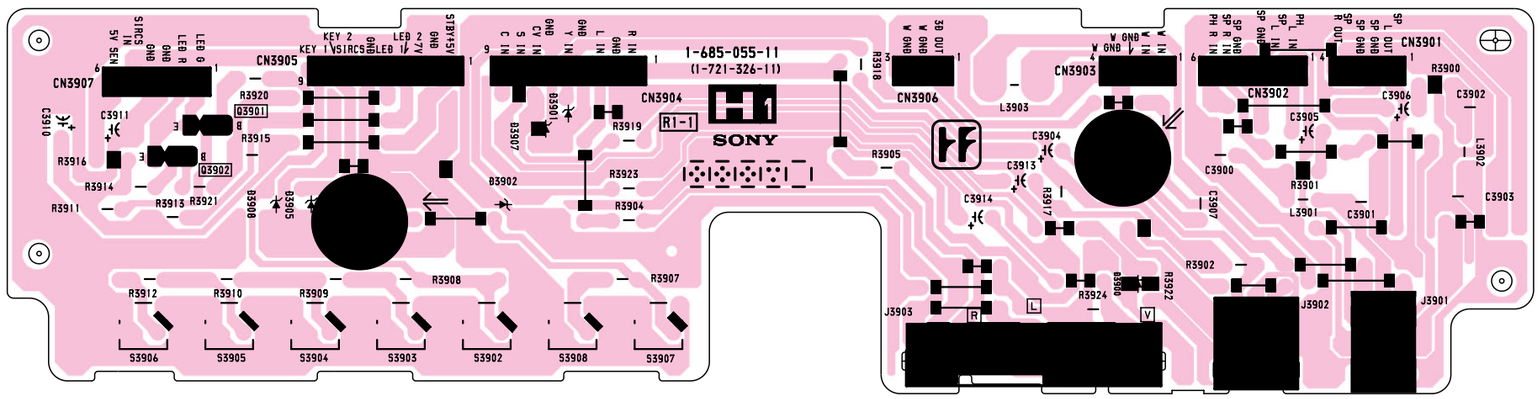
– H2 Board –



– VM1 Board –

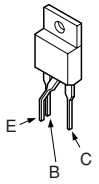
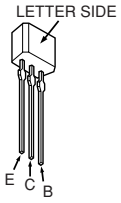
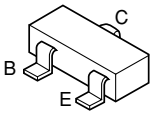
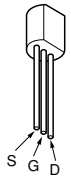
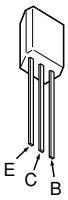
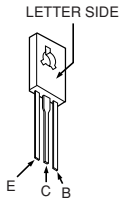


– H1 Board –



5-6. SEMICONDUCTORS

TRANSISTOR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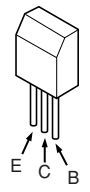
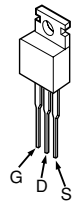
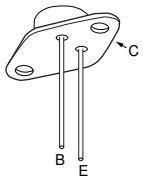
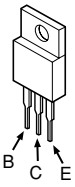
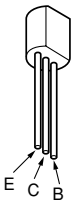
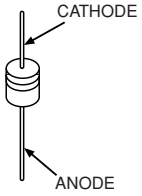
DIODE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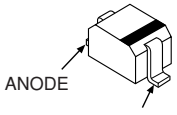	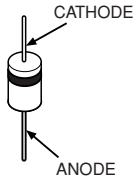		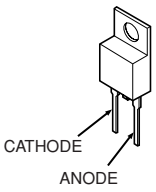	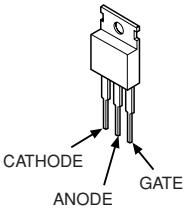	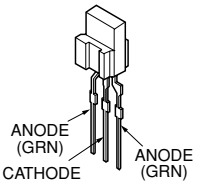
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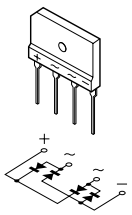	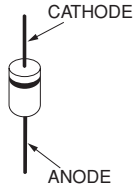	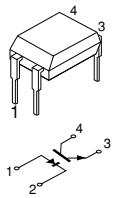	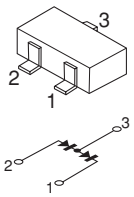	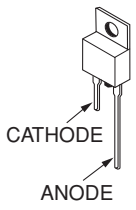	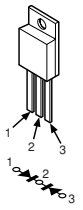
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DIODE

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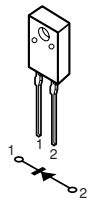
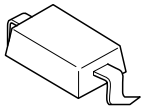
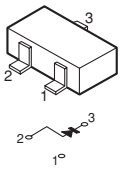
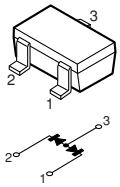
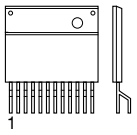
				MARKING SIDE VIEW  Zig-zag In -line Package Pin 6~99	
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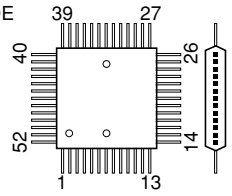
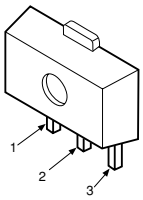
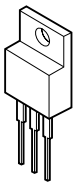
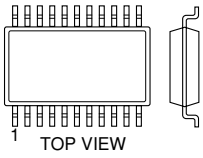
MARKING SIDE VIEW 				SOP  Single In -line Package Pin 8~98	
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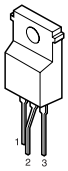
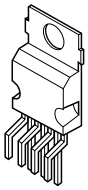
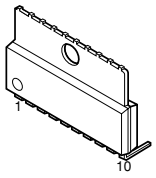
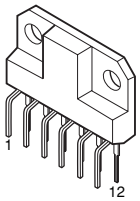
DIP Dual In-line Package Pin 6~98					
CXA1855S CXA2159S CXP750097-605S M24C08-BN6		SE-135N	TDA8172	LA6510	TA8200AH

SECTION 6
EXPLODED VIEWS

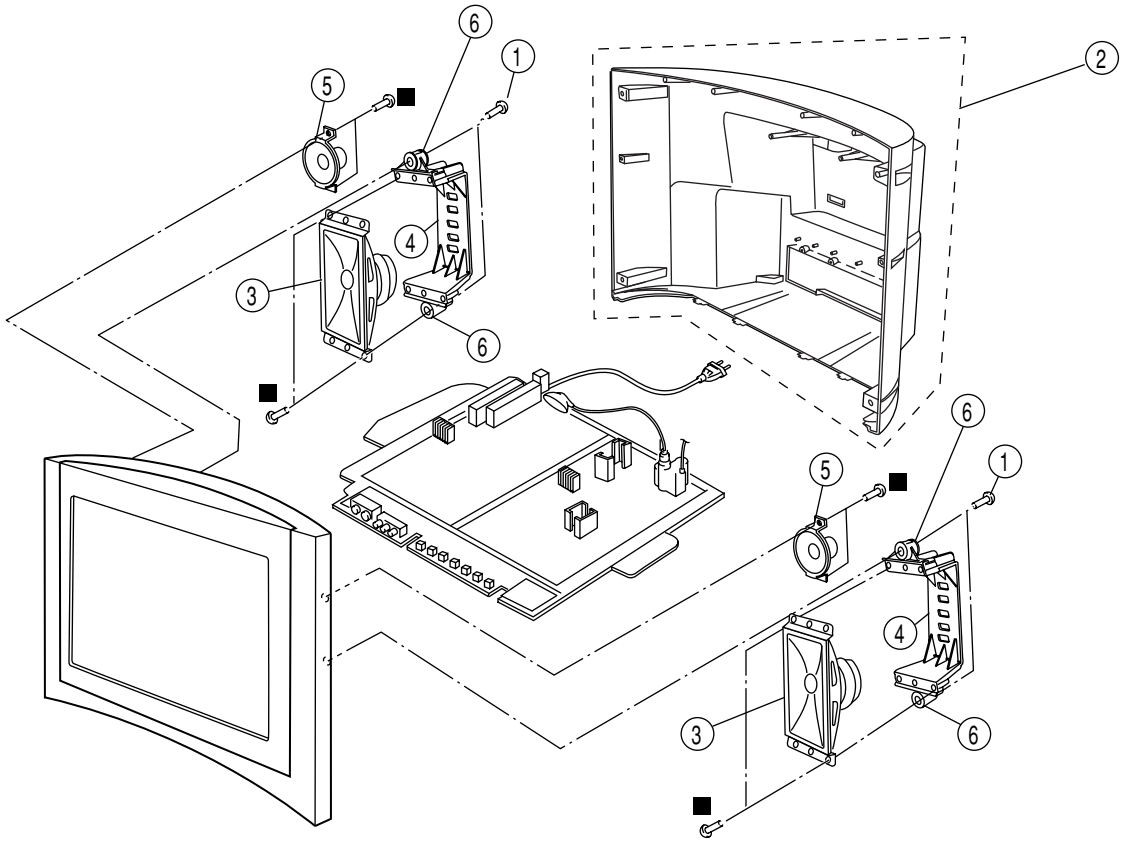
NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. SPEAKER BRACKET

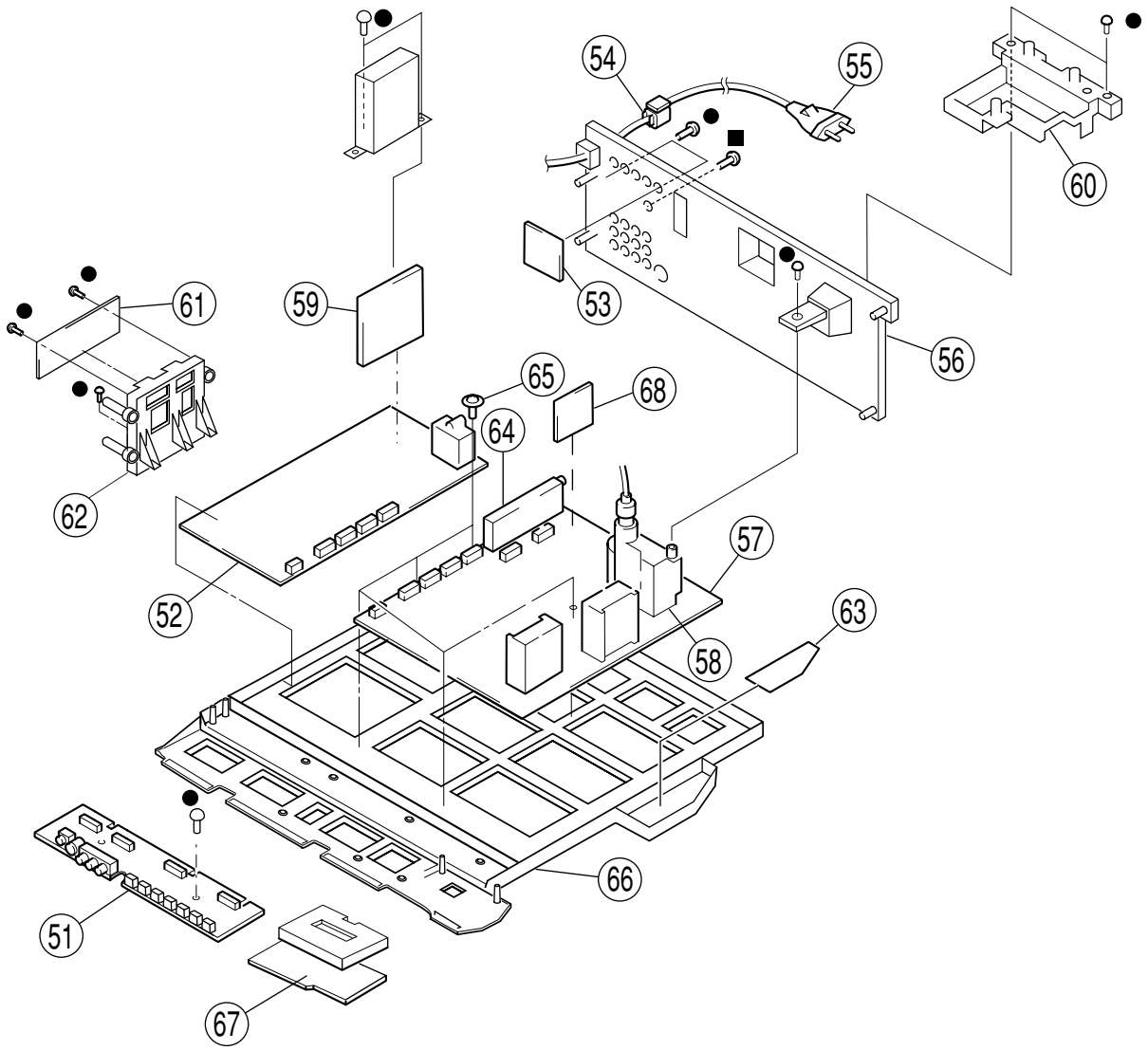
■ : 7-685-663-71 SCREW +BVTP 4 × 16



REF. NO.		PART NO.	DESCRIPTION	REMARK
1		4-302-404-03	SCREW (WASHER HEAD)(+P4 x 16)	
2		X-4040-701-1	REAR COVER ASSY	
3		1-825-099-11	SPEAKER (13 x 5.5 CM)	
4	*	4-086-708-11	BRACKET,SPEAKER	
5		1-825-163-11	SPEAKER (5 CM)	
6		4-374-745-21	CUSHION A	

6-2. CHASSIS

● : 7-685-648-79 SCREW +BVTP 3 × 12
■ : 7-685-663-71 SCREW +BVTP 4 × 16



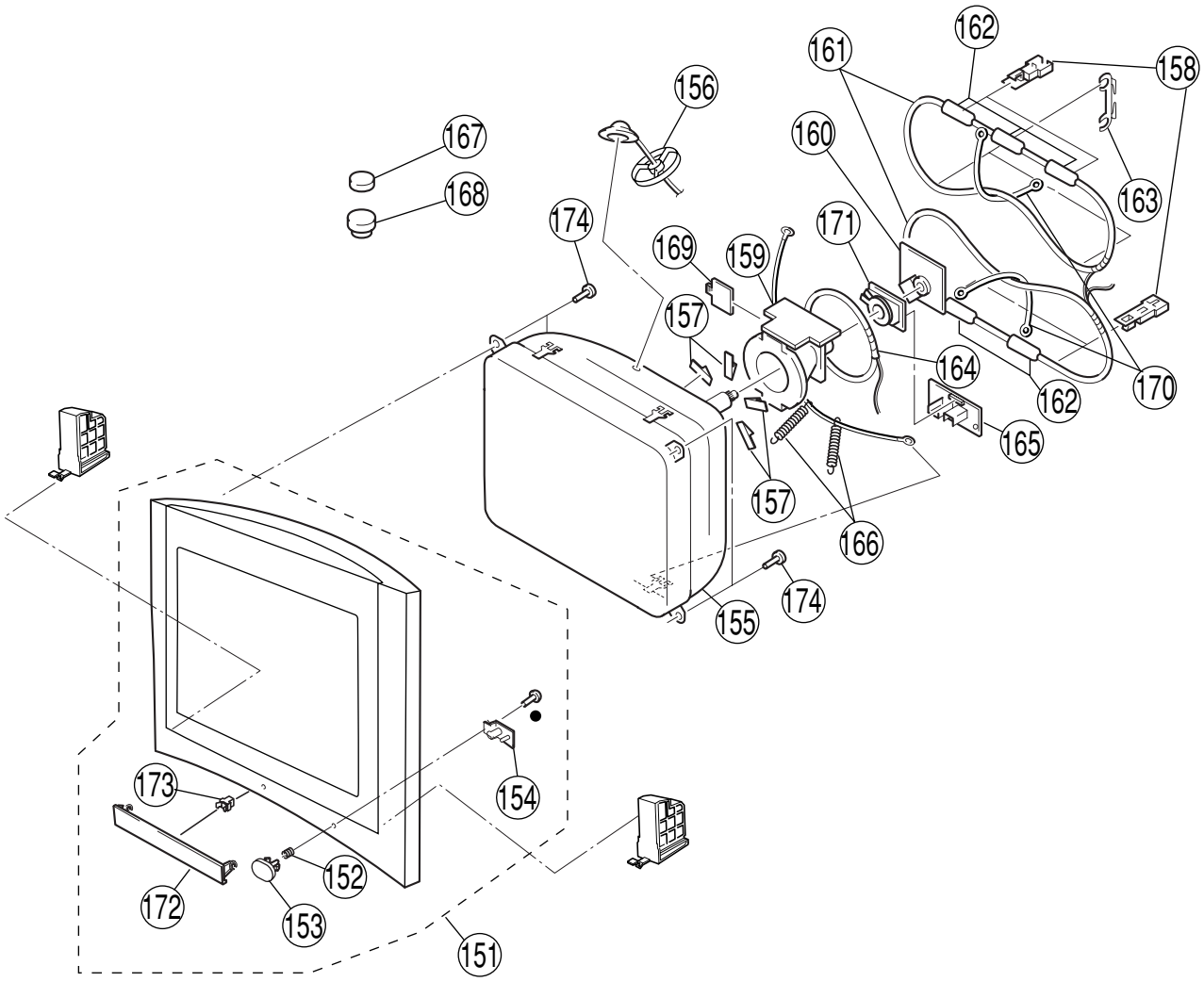
REF. NO.	PART NO.	DESCRIPTION	REMARK
51	* A-1400-972-A	H1 BOARD MOUNTED	
52	* A-1300-895-A	B10 BOARD COMPLETE	
53	* A-1400-975-A	J BOARD, MOUNTED	
54	⚠ 4-022-115-00	HOLDER, AC CORD	
55	⚠ 1-823-550-11	CORD, AC POWER (WITH CONNECTOR)	
56	* 4-081-023-03	BRACKET, TERMINAL	
57	* A-1300-894-A	A BOARD COMPLETE	
58	⚠ 1-453-284-21	TRANSFORMER ASSY, FLYBACK (NX-4009//M314)	
59	* A-1131-652-A	B1 BOARD MOUNTED	
60	* 4-066-680-02	BRACKET HVC	

REF. NO.	PART NO.	DESCRIPTION	REMARK
61	* A-1401-812-A	F BOARD MOUNTED	
62	* 4-066-682-01	BRACKET F PWB	
63	* A-1401-875-A	D3 BOARD MOUNTED	
64	8-598-451-60	TUNER,FSS BTF-WG441	
65	4-046-797-01	SCREW (3 x 12) (+) BVTAP	
66	* 4-088-700-01	BRACKET MAIN (7 SCREWS (3 x 12) (+)BVTAP	
67	* A-1400-973-A	H2 BOARD MOUNTED	
68	A-1347-164-A	V1 BOARD COMPLETE	

6-3. PICTURE TUBE

● : 7-685-648-79 SCREW +BVTP 3 × 12
■ : 7-685-663-71 SCREW +BVTP 4 × 16

Note: The picture tube is upside-down and the position for the anode cap and tension springs are changed accordingly.



REF. NO.		PART NO.	DESCRIPTION	REMARK
151		X-4040-722-1	BEZNET ASSY	152-154, 172,173
152		4-036-405-11	SPRING, COMPRESSION	
153		4-086-448-01	BUTTON, POWER	
154		4-086-707-01	GUIDE, LIGHT	
155	⚠	8-735-057-05	PICTURE TUBE (M68LNH070X)	
156	*	3-704-372-11	HOLDER, HV CABLE	
157		4-046-600-11	SPACER, DY	
158	*	4-062-970-12	CLIP (29RSN), DGC	
159	⚠	8-451-494-31	DEFLECTION YOKE (Y29RSA-S)	
160	*	A-1401-876-A	C6 BOARD MOUNTED	
161	⚠	1-419-323-11	COIL, DEGAUSSING	
162	*	4-063-935-21	CUSHION (50 X 550) DGC	
163		4-064-883-03	HOLDER, DGC	
164		1-452-896-11	COIL, NA ROTATION (RT200)	
165	*	A-1401-877-A	VM1 BOARD MOUNTED	

REF. NO.	PART NO.	DESCRIPTION	REMARK
166	4-369-318-61	SPRING, TENSION	
167	1-452-032-00	MAGNET, DISC	
168	1-452-094-00	CIRCULAR DISC MAGNET B	
169	4-077-228-02	PIECE, TLH CONVERGENCE	
170	4-079-376-01	BAND, DGC	
171	8-453-011-41	NA299-C	
172	4-088-697-01	DOOR	
173	4-087-491-11	SPRING (DOOR)	
174	4-046-765-12	SCREW TAPPING 7+ CROWN WASHER	

SECTION 7
ELECTRICAL PARTS LIST

A

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All resistors are in ohms
- F : nonflammable

CAPACITORS
- MF : µF, PF : µµF

COILS
- MMH : mH, UH : µH

REF NO.	PART NO.	DESCRIPTION			
*	A-1300-894-A	A BOARD COMPLETE **********			
*	4-374-846-01	COVER, CAPACITOR, CAP TYPE			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
	4-382-854-21	SCREW (M3X14), P, SW (+)			
		<CAPACITOR>			
C004	1-163-001-11	CERAMIC CHIP	220PF	10.00%	50V
C005	1-163-001-11	CERAMIC CHIP	220PF	10.00%	50V
C006	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C007	1-126-947-11	ELECT	47UF	20.00%	16V
C013	1-162-970-11	CERAMIC CHIP	0.01UF	10.00%	25V
C014	1-126-947-11	ELECT	47UF	20.00%	25V
C015	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C016	1-163-243-11	CERAMIC CHIP	47PF	5.00%	50V
C017	1-163-247-91	CERAMIC CHIP	68PF	5.00%	50V
C018	1-163-243-11	CERAMIC CHIP	47PF	5.00%	50V
C019	1-126-947-11	ELECT	47UF	20.00%	25V
C020	1-163-259-91	CERAMIC CHIP	220PF	5.00%	50V
C022	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C023	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C024	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C026	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C027	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C028	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C030	1-126-965-91	ELECT	22UF	20.00%	50V
C031	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C032	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C041	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C042	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C043	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C044	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C047	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C048	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C050	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C051	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C053	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C056	1-163-263-11	CERAMIC CHIP	330PF	5.00%	50V
C061	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C103	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C104	1-126-935-11	ELECT	470UF	20.00%	16V
C107	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C108	1-126-947-11	ELECT	47UF	20.00%	16V
C109	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C110	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C111	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C112	1-126-947-11	ELECT	47UF	20.00%	16V
C113	1-126-935-11	ELECT	470UF	20.00%	16V
C114	1-126-967-11	ELECT	47UF	20.00%	50V
C118	1-110-501-11	CERAMIC CHIP	0.33UF	10.00%	16V

REF NO.	PART NO.	DESCRIPTION			
C300	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C301	1-126-935-11	ELECT	470UF	20.00%	16V
C302	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C303	1-126-959-11	ELECT	0.47UF	20.00%	50V
C304	1-126-967-11	ELECT	47UF	20.00%	50V
C305	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C306	1-163-233-91	CERAMIC CHIP	18PF	5.00%	50V
C307	1-163-233-91	CERAMIC CHIP	18PF	5.00%	50V
C308	1-163-259-91	CERAMIC CHIP	220PF	5.00%	50V
C309	1-137-378-11	MYLAR	0.22UF	5.00%	50V
C311	1-126-964-11	ELECT	10UF	20.00%	50V
C312	1-164-346-11	CERAMIC CHIP	1UF		16V
C313	1-164-346-11	CERAMIC CHIP	1UF		16V
C314	1-164-346-11	CERAMIC CHIP	1UF		16V
C315	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C316	1-126-934-11	ELECT	220UF	20.00%	16V
C317	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C318	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C319	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C320	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C321	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C322	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C324	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C325	1-126-960-11	ELECT	1UF	20.00%	50V
C327	1-126-965-91	ELECT	22UF	20.00%	50V
C328	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C329	1-126-963-11	ELECT	4.7UF	20.00%	50V
C330	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C331	1-126-963-11	ELECT	4.7UF	20.00%	50V
C332	1-126-963-11	ELECT	4.7UF	20.00%	50V
C335	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C336	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C337	1-126-961-11	ELECT	2.2UF	20.00%	50V
C341	1-115-340-11	CERAMIC CHIP	0.22UF	10.00%	25V
C342	1-163-259-91	CERAMIC CHIP	220PF	5.00%	50V
C347	1-126-933-11	ELECT	100UF	20.00%	16V
C348	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C349	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C350	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C351	1-126-964-11	ELECT	10UF	20.00%	50V
C352	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C353	1-126-960-11	ELECT	1UF	20.00%	50V
C356	1-126-947-11	ELECT	47UF	20.00%	16V
C357	1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C358	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C359	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C502	1-163-145-00	CERAMIC CHIP	0.0015UF	5.00%	50V
C503	1-126-964-11	ELECT	10UF	20.00%	50V
C506	1-107-638-11	ELECT	33UF	20.00%	160V
C507	1-161-830-00	CERAMIC	0.0047UF		500V
C510	1-102-112-00	CERAMIC	330PF	10.00%	50V
C512	1-163-989-11	CERAMIC CHIP	0.033UF	10.00%	25V

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF NO.		PART NO.	DESCRIPTION		REMARK	
C513		1-163-263-11	CERAMIC CHIP	330PF	5.00%	50V
C514		1-106-383-00	MYLAR	0.047UF	10.00%	200V
C517		1-164-182-11	CERAMIC CHIP	0.0033UF	10.00%	50V
C518		1-104-665-11	ELECT	100UF	20.00%	10V
C519		1-102-212-00	CERAMIC	820PF	10.00%	500V
C521		1-126-934-11	ELECT	220UF	20.00%	16V
C522		1-126-933-11	ELECT	100UF	20.00%	16V
C523		1-102-002-00	CERAMIC	680PF	10.00%	500V
C524		1-126-967-11	ELECT	47UF	20.00%	50V
C526		1-130-495-00	MYLAR	0.1UF	5.00%	50V
C527		1-102-820-00	CERAMIC	330PF	5.00%	50V
C528		1-162-116-00	CERAMIC	680PF	10.00%	2KV
C530		1-137-372-11	MYLAR	0.022UF	5.00%	50V
C531		1-107-903-11	ELECT	2.2UF	20.00%	50V
C532		1-126-941-11	ELECT	470UF	20.00%	25V
C533		1-126-941-11	ELECT	470UF	20.00%	25V
C534		1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C536		1-130-495-00	MYLAR	0.1UF	5.00%	50V
C537		1-126-969-11	ELECT	220UF	20.00%	50V
C538		1-127-717-11	FILM	19000PF	3%	1.2KV
C539	⚠	1-110-541-91	FILM	0.056UF	5.00%	630V
C540		1-136-171-00	FILM	0.33UF	5.00%	50V
C546		1-165-319-11	CERAMIC CHIP	0.1UF		50V
C549		1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C550		1-106-220-00	MYLAR	0.1UF	10.00%	100V
C551		1-126-960-11	ELECT	1UF	20.00%	50V
C552		1-162-116-00	CERAMIC	680PF	10.00%	2KV
C553		1-162-116-00	CERAMIC	680PF	10.00%	2KV
C554		1-137-417-11	MYLAR	0.0047UF	10.00%	200V
C556		1-126-941-11	ELECT	470UF	20.00%	25V
C557		1-126-941-11	ELECT	470UF	20.00%	25V
C558		1-123-024-21	ELECT	33UF		160V
C560		1-102-228-00	CERAMIC	470PF	10.00%	500V
C561		1-129-898-00	FILM	0.0022UF	5.00%	630V
C562		1-102-228-00	CERAMIC	470PF	10.00%	500V
C564		1-163-038-91	CERAMIC CHIP	0.1UF		25V
C565		1-107-655-11	ELECT	47UF	20.00%	250V
C566		1-102-244-00	CERAMIC	220PF	10.00%	500V
C567	⚠	1-115-520-21	FILM	0.68UF	5.00%	250V
C568		1-102-228-00	CERAMIC	470PF	10.00%	500V
C570		1-115-522-11	FILM	1UF	5.00%	250V
C572		1-117-661-21	FILM	0.15UF	5.00%	250V
C573		1-106-387-00	MYLAR	0.068UF	10.00%	200V
C574		1-104-709-11	ELECT	4.7UF		160V
C576		1-130-495-00	MYLAR	0.1UF	5.00%	50V
C577		1-106-395-00	MYLAR	0.15UF	10.00%	200V
C582		1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C584		1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C586		1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C600	⚠	1-115-165-11	MYLAR	0.1UF	20.00%	250V
C602	⚠	1-115-165-11	MYLAR	0.1UF	20.00%	250V
C603		1-126-947-11	ELECT	47UF	20.00%	25V
C604		1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C605	⚠	1-119-886-51	CERAMIC	470PF	10.00%	250V
C606	⚠	1-119-886-51	CERAMIC	470PF	10.00%	250V
C607		1-161-830-00	CERAMIC	0.0047UF	99%	500V
C608		1-161-830-00	CERAMIC	0.0047UF	99%	500V
C609		1-126-968-11	ELECT	100UF	20.00%	50V
C610		1-126-964-11	ELECT	10UF	20.00%	50V
C611		1-161-830-00	CERAMIC	0.0047UF	99%	500V

REF NO.		PART NO.	DESCRIPTION		REMARK	
C612		1-161-830-00	CERAMIC	0.0047UF	99%	500V
C613		1-125-906-11	ELECT	560UF	20.00%	450V
C614		1-126-964-11	ELECT	10UF	20.00%	50V
C615	⚠	1-119-886-51	CERAMIC	470PF	10.00%	250V
C616		1-130-202-00	FILM	0.022UF	5.00%	400V
C617		1-107-792-11	CERAMIC	100PF	5.00%	1KV
C618		1-125-893-11	FILM	680PF	3.00%	1.5KV
C619	⚠	1-119-886-51	CERAMIC	470PF	10.00%	250V
C620		1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C621		1-102-114-00	CERAMIC	470PF	10.00%	50V
C622		1-102-074-00	CERAMIC	0.001UF	10.00%	50V
C623		1-104-665-11	ELECT	100UF	20.00%	25V
C624		1-104-331-11	CERAMIC	0.0022UF	10.00%	1KV
C626		1-102-002-00	CERAMIC	680PF	10.00%	500V
C629		1-107-906-11	ELECT	10UF	20.00%	50V
C630		1-125-494-11	ELECT(BLOCK)	560UF	20.00%	160V
C631		1-128-550-11	ELECT	2200UF	20.00%	50V
C632		1-126-936-11	ELECT	3300UF	20.00%	16V
C633		1-104-999-11	MYLAR	0.1UF	10.00%	200V
C634		1-126-933-11	ELECT	100UF	20.00%	16V
C635		1-126-934-11	ELECT	220UF	20.00%	16V
C636		1-104-760-11	CERAMIC CHIP	0.047UF	10.00%	50V
C638		1-161-830-00	CERAMIC	0.0047UF		500V
C641		1-102-002-00	CERAMIC	680PF	10.00%	500V
C642		1-126-943-11	ELECT	2200UF	20.00%	25V
C643		1-104-665-11	ELECT	100UF	20.00%	10V
C644		1-104-331-11	CERAMIC	0.0022UF	10.00%	1KV
C645		1-137-605-11	MYLAR	0.01UF	10.00%	250V
C646		1-107-679-91	ELECT	10UF	20.00%	450V
C647		1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C649		1-126-940-11	ELECT	330UF	20.00%	25V
C650		1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C651		1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C652		1-126-965-91	ELECT	22UF	20.00%	50V
C653		1-126-947-11	ELECT	47UF	20.00%	25V
C655	⚠	1-119-886-51	CERAMIC	470PF	10.00%	250V
C657		1-101-821-00	CERAMIC	0.0022UF		500V
C659		1-162-116-00	CERAMIC	680PF	10.00%	2KV
C912		1-107-826-11	CERAMIC CHIP	0.1UF	10.00%	16V
C913		1-104-665-11	ELECT	100UF	20.00%	10V

<CONNECTOR>

CN101	*	1-779-890-11	CONNECTOR, BOARD TO BOARD 10P
CN102	*	1-779-889-11	CONNECTOR, BOARD TO BOARD 8P
CN104		1-695-915-11	TAB (CONTACT)
CN105		1-695-915-11	TAB (CONTACT)
CN106		1-564-506-11	PLUG, CONNECTOR 3P
CN201	*	1-564-508-11	PLUG, CONNECTOR 5P
CN202	*	1-508-847-00	PIN, CONNECTOR 4P
CN301	*	1-774-813-11	CONNECTOR, BOARD TO BOARD 7P
CN303	*	1-779-890-11	CONNECTOR, BOARD TO BOARD 10P
CN305		1-564-509-11	PLUG, CONNECTOR 6P
CN307	*	1-774-813-11	CONNECTOR, BOARD TO BOARD 7P
CN501	*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN502	*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN503	*	1-564-510-11	PLUG, CONNECTOR 7P
CN504		1-695-915-11	TAB (CONTACT)
CN505	*	1-564-508-11	PLUG, CONNECTOR 5P
CN507	*	1-564-509-11	PLUG, CONNECTOR 6P
CN508		1-695-915-11	TAB (CONTACT)
CN601	*	1-580-843-11	PIN, CONNECTOR (POWER)
CN602	*	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P

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REF NO.		PART NO.	DESCRIPTION	REMARK
CN603	*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P	
CN604	*	1-691-134-11	PIN, CONNECTOR (PC BOARD) 2P	
CN608		1-564-507-41	PLUG, CONNECTOR 4P	
CN904	*	1-564-512-11	PLUG, CONNECTOR 9P	
			<DIODE>	
D001		8-719-081-97	MMDL914T1	
D002		8-719-081-97	MMDL914T1	
D004		1-216-295-91	SHORT CHIP 0	
D005		8-719-081-97	MMDL914T1	
D006		1-216-295-91	SHORT CHIP 0	
D007		8-719-081-97	MMDL914T1	
D008		8-719-081-97	MMDL914T1	
D009		8-719-081-97	MMDL914T1	
D010		8-719-158-35	RD9.1S-B	
D100		8-719-081-97	MMDL914T1	
D300		1-216-295-91	SHORT CHIP 0	
D301		8-719-081-97	MMDL914T1	
D306		8-719-081-97	MMDL914T1	
D307		8-719-081-97	MMDL914T1	
D308		8-719-081-97	MMDL914T1	
D309		8-719-159-10	RD5.1SB-T2	
D311		8-719-081-97	MMDL914T1	
D312		8-719-081-97	MMDL914T1	
D313		8-719-081-97	MMDL914T1	
D315		8-719-081-97	MMDL914T1	
D316		8-719-037-06	RD7.5SB1-T1	
D319		8-719-158-35	RD9.1S-B	
D320		8-719-158-35	RD9.1S-B	
D321		8-719-158-35	RD9.1S-B	
D322		8-719-158-35	RD9.1S-B	
D504		8-719-075-05	DIODE FR104-A5	
D505		8-719-081-97	MMDL914T1	
D506		8-719-911-19	1SS119-25	
D507		8-719-081-97	MMDL914T1	
D508		8-719-081-97	MMDL914T1	
D509		1-216-073-91	RES-CHIP 10K 5% 1/10W	
D510		8-719-081-97	MMDL914T1	
D511		8-719-081-97	MMDL914T1	
D512		8-719-081-97	MMDL914T1	
D513		8-719-908-03	GP08D	
D517		8-719-081-00	DIODE BY228/A52A/	
D518		8-719-074-35	RU4AM-T4	
D519		8-719-312-71	RS3FS	
D521		8-719-302-43	EL1Z	
D522		8-719-028-45	D2L20U	
D523		8-719-302-43	EL1Z	
D527		8-719-908-03	GP08D	
D528		8-719-908-03	GP08D	
D532		8-719-081-97	MMDL914T1	
D534		8-719-081-97	MMDL914T1	
D600		8-719-911-19	1SS119-25	
D602		8-719-911-19	1SS119-25	
D603		8-719-150-92	RD33EB3T	
D604		8-719-028-72	RGP02-17EL-6433	
D605		8-719-510-22	D3SB60	
D606		8-719-108-18	5P-6M	
D607		8-719-081-97	MMDL914T1	
D608		8-719-110-53	RD20ES-B2	
D609		8-719-311-31	RU-1P	
D610		8-719-043-76	AK04V0	

REF NO.		PART NO.	DESCRIPTION	REMARK
D611		8-719-046-74	AU-01Z-V1	
D612		8-719-043-52	F5KQ60	
D613		8-719-046-74	AU-01Z-V1	
D614		8-719-046-74	AU-01Z-V1	
D616		8-719-083-56	DIODE 30DF2N-FC5	
D620		8-719-110-72	RD30ESB2	
D621		8-719-071-38	D5S6M	
D622		8-719-029-04	D5L60	
D623		8-719-056-91	DTZ-TT11-15B	
D624		8-719-081-97	MMDL914T1	
D625		8-719-977-28	DTZ10B	
D628		8-719-911-19	1SS119-25	
D631		8-719-068-00	ERC04-06SE	
D632		8-719-068-00	ERC04-06SE	
D633		8-719-948-45	ERA22-08	
D634		8-719-081-97	MMDL914T1	
D635		8-719-081-97	MMDL914T1	
D636		8-719-510-02	D1NS4	
D637		8-719-109-96	RD6.8ES-B1	
D638		8-719-510-48	D1N20R	
			<CONNECTOR>	
DY1	*	1-580-798-11	CONNECTOR PIN (DY) 6P	
			<FERRITE BEAD>	
FB300		1-412-911-31	FERRITE 0UH	
FB501		1-410-397-21	FERRITE 1.1UH	
FB502		1-410-397-21	FERRITE 1.1UH	
FB600		1-410-397-21	FERRITE 1.1UH	
FB601		1-410-397-21	FERRITE 1.1UH	
FB602		1-410-397-21	FERRITE 1.1UH	
FB603		1-410-397-21	FERRITE 1.1UH	
FB604		1-412-911-31	FERRITE 0UH	
FB605		1-412-911-31	FERRITE 0UH	
FB606		1-412-911-31	FERRITE 0UH	
FB608		1-412-911-31	FERRITE 0UH	
FB611		1-410-397-21	FERRITE 1.1UH	
FB612		1-410-397-21	FERRITE 1.1UH	
FB613		1-410-397-21	FERRITE 1.1UH	
FB615		1-410-397-21	FERRITE 1.1UH	
			<IC>	
IC001		8-752-933-33	IC CXP750097-605S	
IC002		8-759-371-21	MM1319AFBE	
IC003		8-759-672-78	M24C08-BN6(A)	
IC100		8-759-042-02	S-80743AL-A7-S	
IC301		8-752-095-72	CXA2159S	
IC302		8-759-666-90	IC TDA9181T	
IC502		8-759-700-07	NJM2903M	
IC503		8-759-980-58	TDA8172	
IC601		8-749-019-09	IC STR-F6456S	
IC602		8-749-920-61	SE-135N	
IC603		8-759-701-59	NJM78M09FA	
IC604		8-759-231-53	TA7805S	
			<CHIP CONDUCTOR>	
JR001		1-216-295-91	SHORT CHIP 0	
JR002		1-216-295-91	SHORT CHIP 0	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION		REMARK
JR003	1-216-295-91	SHORT CHIP	0	
JR004	1-216-295-91	SHORT CHIP	0	
JR006	1-216-295-91	SHORT CHIP	0	
JR007	1-216-295-91	SHORT CHIP	0	
JR008	1-216-295-91	SHORT CHIP	0	
JR010	1-216-295-91	SHORT CHIP	0	
JR012	1-216-295-91	SHORT CHIP	0	
JR014	1-216-295-91	SHORT CHIP	0	
JR015	1-216-295-91	SHORT CHIP	0	
JR016	1-216-295-91	SHORT CHIP	0	
JR020	1-216-295-91	SHORT CHIP	0	
JR022	1-216-295-91	SHORT CHIP	0	
JR023	1-216-295-91	SHORT CHIP	0	
JR024	1-216-295-91	SHORT CHIP	0	
JR025	1-216-295-91	SHORT CHIP	0	
JR028	1-216-295-91	SHORT CHIP	0	
JR030	1-216-295-91	SHORT CHIP	0	
JR031	1-216-295-91	SHORT CHIP	0	
JR102	1-216-295-91	SHORT CHIP	0	
JR107	1-216-295-91	SHORT CHIP	0	
JR214	1-216-295-91	SHORT CHIP	0	
JR304	1-216-295-91	SHORT CHIP	0	
JR308	1-216-295-91	SHORT CHIP	0	
JR309	1-216-295-91	SHORT CHIP	0	
JR310	1-216-295-91	SHORT CHIP	0	
JR311	1-216-295-91	SHORT CHIP	0	
JR500	1-216-295-91	SHORT CHIP	0	
JR501	1-216-295-91	SHORT CHIP	0	
JR502	1-216-295-91	SHORT CHIP	0	
JR503	1-216-295-91	SHORT CHIP	0	
JR600	1-216-295-91	SHORT CHIP	0	
		<COIL>		
L002	1-414-856-11	INDUCTOR	10UH	
L003	1-414-180-11	INDUCTOR	3.3UH	
L004	1-249-395-11	CARBON	15 5% 1/4W	
L005	1-414-233-22	FERRITE	0UH	
L101	1-414-856-11	INDUCTOR	10UH	
L102	1-414-189-31	INDUCTOR	100UH	
L103	1-414-856-11	INDUCTOR	10UH	
L104	1-414-856-11	INDUCTOR	10UH	
L105	1-414-185-41	INDUCTOR	22UH	
L301	1-414-189-31	INDUCTOR	100UH	
L302	1-414-185-41	INDUCTOR	22UH	
L303	1-414-189-31	INDUCTOR	100UH	
L304	1-414-189-31	INDUCTOR	100UH	
L501	1-412-525-31	INDUCTOR	10UH	
L502	1-416-947-11	COIL, AIR-CORE		
L503	1-412-525-31	INDUCTOR	10UH	
L504	1-412-525-31	INDUCTOR	10UH	
L507	1-459-111-00	INDUCTOR	10MH	
L511	1-406-977-71	INDUCTOR	0UH	
L513	1-412-551-31	INDUCTOR	1.5MH	
L515	1-459-104-00	COIL, WITH CORE		
L518	1-414-187-11	INDUCTOR	47UH	
L601	1-412-527-11	INDUCTOR	15UH	
L905	1-414-856-11	INDUCTOR	10UH	
		<PHOTO COUPLER>		
PH600	⚠ 8-749-924-35	ON3171-R		

REF NO.	PART NO.	DESCRIPTION			
		<IC LINK>			
PS600	1-533-597-41	LINK, IC			
PS601	1-533-597-41	LINK, IC			
		<TRANSISTOR>			
Q001	8-729-216-22	2SA1162-G			
Q002	8-729-230-49	2SC2712-YG			
Q101	8-729-230-49	2SC2712-YG			
Q301	8-729-216-22	2SA1162-G			
Q302	8-729-230-49	2SC2712-YG			
Q303	8-729-216-22	2SA1162-G			
Q304	8-729-216-22	2SA1162-G			
Q305	8-729-216-22	2SA1162-G			
Q306	8-729-230-49	2SC2712-YG			
Q307	8-729-230-49	2SC2712-YG			
Q308	8-729-216-22	2SA1162-G			
Q309	8-729-421-19	UN2213			
Q310	8-729-230-49	2SC2712-YG			
Q311	8-729-230-49	2SC2712-YG			
Q312	8-729-216-22	2SA1162-G			
Q313	8-729-230-49	2SC2712-YG			
Q314	8-729-216-22	2SA1162-G			
Q315	8-729-421-19	UN2213			
Q316	8-729-216-22	2SA1162-G			
Q317	8-729-216-22	2SA1162-G			
Q501	8-729-216-22	2SA1162-G			
Q502	8-729-216-22	2SA1162-G			
Q503	8-729-230-49	2SC2712-YG			
Q505	8-729-931-45	IRF614			
Q506	8-729-119-80	2SC2688-LK			
Q507	8-729-216-22	2SA1162-G			
Q509	8-729-230-49	2SC2712-YG			
Q511	8-729-048-07	2SD2578-CA			
Q600	8-729-119-78	2SC2785-HFE			
Q601	8-729-023-22	2SD2114K			
Q602	8-729-230-49	2SC2712-YG			
Q603	8-729-424-08	UN2111			
Q604	8-729-200-17	2SA1091-O			
Q605	8-729-044-30	2SK2845-LB102			
Q606	8-729-230-49	2SC2712-YG			
Q607	8-729-823-22	2SC3576			
Q608	8-729-230-49	2SC2712-YG			
		<RESISTOR>			
R001	1-414-233-22	FERRITE	0UH		
R002	1-216-025-11	RES-CHIP	100	5%	1/10W
R003	1-216-073-91	RES-CHIP	10K	5%	1/10W
R004	1-216-025-11	RES-CHIP	100	5%	1/10W
R005	1-216-025-11	RES-CHIP	100	5%	1/10W
R008	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R010	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R011	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R012	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R013	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R014	1-216-025-11	RES-CHIP	100	5%	1/10W
R015	1-216-025-11	RES-CHIP	100	5%	1/10W
R018	1-216-033-00	RES-CHIP	220	5%	1/10W
R019	1-216-073-91	RES-CHIP	10K	5%	1/10W
R020	1-216-045-00	RES-CHIP	680	5%	1/10W

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R021	1-216-073-91	RES-CHIP	10K	5%	1/10W
R022	1-216-295-91	SHORT CHIP	0		
R023	1-216-049-11	RES-CHIP	1K	5%	1/10W
R024	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R025	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R026	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R027	1-216-049-11	RES-CHIP	1K	5%	1/10W
R028	1-216-073-91	RES-CHIP	10K	5%	1/10W
R029	1-216-049-11	RES-CHIP	1K	5%	1/10W
R031	1-216-049-11	RES-CHIP	1K	5%	1/10W
R032	1-216-025-11	RES-CHIP	100	5%	1/10W
R034	1-216-049-11	RES-CHIP	1K	5%	1/10W
R035	1-216-025-11	RES-CHIP	100	5%	1/10W
R036	1-216-025-11	RES-CHIP	100	5%	1/10W
R037	1-216-025-11	RES-CHIP	100	5%	1/10W
R038	1-216-049-11	RES-CHIP	1K	5%	1/10W
R040	1-216-025-11	RES-CHIP	100	5%	1/10W
R041	1-216-025-11	RES-CHIP	100	5%	1/10W
R042	1-216-295-91	SHORT CHIP	0		
R043	1-216-049-11	RES-CHIP	1K	5%	1/10W
R044	1-216-025-11	RES-CHIP	100	5%	1/10W
R045	1-414-233-22	FERRITE	0UH		
R046	1-216-049-11	RES-CHIP	1K	5%	1/10W
R047	1-414-233-22	FERRITE	0UH		
R048	1-216-073-91	RES-CHIP	10K	5%	1/10W
R050	1-216-073-91	RES-CHIP	10K	5%	1/10W
R053	1-216-049-11	RES-CHIP	1K	5%	1/10W
R058	1-216-295-91	SHORT CHIP	0		
R059	1-216-295-91	SHORT CHIP	0		
R060	1-216-295-91	SHORT CHIP	0		
R061	1-216-295-91	SHORT CHIP	0		
R062	1-216-041-00	RES-CHIP	470	5%	1/10W
R063	1-216-041-00	RES-CHIP	470	5%	1/10W
R064	1-216-041-00	RES-CHIP	470	5%	1/10W
R065	1-216-041-00	RES-CHIP	470	5%	1/10W
R066	1-216-049-11	RES-CHIP	1K	5%	1/10W
R067	1-216-049-11	RES-CHIP	1K	5%	1/10W
R068	1-216-041-00	RES-CHIP	470	5%	1/10W
R101	1-216-025-11	RES-CHIP	100	5%	1/10W
R102	1-216-025-11	RES-CHIP	100	5%	1/10W
R105	1-216-295-91	SHORT CHIP	0		
R109	1-216-041-00	RES-CHIP	470	5%	1/10W
R111	1-216-025-11	RES-CHIP	100	5%	1/10W
R112	1-216-025-11	RES-CHIP	100	5%	1/10W
R113	1-216-025-11	RES-CHIP	100	5%	1/10W
R225	1-216-033-00	RES-CHIP	220	5%	1/10W
R226	1-216-033-00	RES-CHIP	220	5%	1/10W
R227	1-216-033-00	RES-CHIP	220	5%	1/10W
R237	1-216-295-91	SHORT CHIP	0		
R301	1-216-113-00	RES-CHIP	470K	5%	1/10W
R302	1-216-295-91	SHORT CHIP	0		
R303	1-216-049-11	RES-CHIP	1K	5%	1/10W
R304	1-216-073-91	RES-CHIP	10K	5%	1/10W
R308	1-216-025-11	RES-CHIP	100	5%	1/10W
R309	1-216-025-11	RES-CHIP	100	5%	1/10W
R310	1-216-025-11	RES-CHIP	100	5%	1/10W
R311	1-216-041-00	RES-CHIP	470	5%	1/10W
R312	1-216-039-00	RES-CHIP	390	5%	1/10W
R313	1-216-037-00	RES-CHIP	330	5%	1/10W
R314	1-216-083-00	RES-CHIP	27K	5%	1/10W
R315	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R316	1-216-037-00	RES-CHIP	330	5%	1/10W
R317	1-216-091-00	RES-CHIP	56K	5%	1/10W
R318	1-216-039-00	RES-CHIP	390	5%	1/10W
R319	1-216-025-11	RES-CHIP	100	5%	1/10W
R320	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R321	1-216-073-91	RES-CHIP	10K	5%	1/10W
R322	1-216-033-00	RES-CHIP	220	5%	1/10W
R323	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R324	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R326	1-216-029-00	RES-CHIP	150	5%	1/10W
R327	1-216-033-00	RES-CHIP	220	5%	1/10W
R328	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R329	1-216-041-00	RES-CHIP	470	5%	1/10W
R331	1-216-295-91	SHORT CHIP	0		
R332	1-216-033-00	RES-CHIP	220	5%	1/10W
R335	1-216-045-00	RES-CHIP	680	5%	1/10W
R338	1-216-037-00	RES-CHIP	330	5%	1/10W
R339	1-216-033-00	RES-CHIP	220	5%	1/10W
R340	1-216-025-11	RES-CHIP	100	5%	1/10W
R345	1-216-081-00	RES-CHIP	22K	5%	1/10W
R348	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R349	1-216-073-91	RES-CHIP	10K	5%	1/10W
R350	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R351	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R354	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R355	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R356	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R357	1-216-079-00	RES-CHIP	18K	5%	1/10W
R358	1-216-049-11	RES-CHIP	1K	5%	1/10W
R359	1-216-033-00	RES-CHIP	220	5%	1/10W
R360	1-216-033-00	RES-CHIP	220	5%	1/10W
R361	1-216-073-91	RES-CHIP	10K	5%	1/10W
R362	1-216-075-00	RES-CHIP	12K	5%	1/10W
R363	1-216-079-00	RES-CHIP	18K	5%	1/10W
R364	1-216-295-91	SHORT CHIP	0		
R365	1-216-033-00	RES-CHIP	220	5%	1/10W
R366	1-216-073-91	RES-CHIP	10K	5%	1/10W
R367	1-216-073-91	RES-CHIP	10K	5%	1/10W
R368	1-216-073-91	RES-CHIP	10K	5%	1/10W
R370	1-216-033-00	RES-CHIP	220	5%	1/10W
R371	1-216-083-00	RES-CHIP	27K	5%	1/10W
R372	1-216-091-00	RES-CHIP	56K	5%	1/10W
R375	1-216-025-11	RES-CHIP	100	5%	1/10W
R376	1-216-081-00	RES-CHIP	22K	5%	1/10W
R377	1-216-121-11	RES-CHIP	1M	5%	1/10W
R378	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R379	1-218-179-11	RES-CHIP	10M	5%	1/10W
R381	1-216-295-91	SHORT CHIP	0		
R382	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R383	1-216-049-11	RES-CHIP	1K	5%	1/10W
R384	1-216-041-00	RES-CHIP	470	5%	1/10W
R385	1-216-029-00	RES-CHIP	150	5%	1/10W
R391	1-216-295-91	SHORT CHIP	0		
R500	1-249-417-11	CARBON	1K	5%	1/4W
R501	1-216-049-11	RES-CHIP	1K	5%	1/10W
R505	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R506	1-216-081-00	RES-CHIP	22K	5%	1/10W
R507	1-249-389-11	CARBON	4.7	5%	1/4W
R508	1-216-471-11	METAL OXIDE	27	5%	3W
R509	1-216-473-11	METAL OXIDE	56	5%	3W
R510	1-216-449-11	METAL OXIDE	56	5%	2W
R511	1-215-908-00	METAL OXIDE	33	5%	3W
R515	1-215-911-11	METAL OXIDE	100	5%	3W
R517	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R518	1-247-807-31	CARBON	100	5%	1/4W
R519	1-215-913-11	METAL OXIDE	220	5%	3W
R520	1-215-445-00	METAL	10K	1%	1/4W
R522	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R523	1-249-411-11	CARBON	330	5%	1/4W
R525	1-208-846-11	METAL CHIP	470K	0.5%	1/10W
R526	1-208-804-11	METAL CHIP	8.2K	0.5%	1/10W
R527	1-216-001-00	RES-CHIP	10	5%	1/10W
R528	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R529	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R531	1-247-843-11	CARBON	3.3K	5%	1/4W
R533	1-249-417-11	CARBON	1K	5%	1/4W
R534	1-216-364-21	METAL OXIDE	0.39	5%	2W
R535	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R536	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R537	1-208-804-11	METAL CHIP	8.2K	0.5%	1/10W
R539	1-216-049-11	RES-CHIP	1K	5%	1/10W
R540	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R541	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R542	1-216-073-91	RES-CHIP	10K	5%	1/10W
R543	1-216-437-00	METAL OXIDE	5.6K	5%	1W
R544	1-215-917-11	METAL OXIDE	1K	5%	3W
R545	1-216-077-91	RES-CHIP	15K	5%	1/10W
R546	1-216-077-91	RES-CHIP	15K	5%	1/10W
R547	1-216-085-91	RES-CHIP	33K	5%	1/10W
R548	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W
R549	1-215-452-00	METAL	20K	1%	1/4W
R550	1-216-097-11	RES-CHIP	100K	5%	1/10W
R551	1-249-441-11	CARBON	100K	5%	1/4W
R552	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R553	1-215-453-00	METAL	22K	1%	1/4W
R554	1-215-453-00	METAL	22K	1%	1/4W
R556	1-215-437-00	METAL	4.7K	1%	1/4W
R558	1-247-843-11	CARBON	3.3K	5%	1/4W
R559	1-249-429-11	CARBON	10K	5%	1/4W
R560	1-216-073-91	RES-CHIP	10K	5%	1/10W
R561	1-216-049-11	RES-CHIP	1K	5%	1/10W
R562	1-249-401-11	CARBON	47	5%	1/4W
R564	1-208-820-11	METAL CHIP	39K	0.5%	1/10W
R565	1-216-073-91	RES-CHIP	10K	5%	1/10W
R567	1-216-105-91	RES-CHIP	220K	5%	1/10W
R568	1-249-383-11	CARBON	1.5	5%	1/4W
R570	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R571	1-215-443-00	METAL	8.2K	1%	1/4W
R573	1-216-083-00	RES-CHIP	27K	5%	1/10W
R575	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W
R577	1-215-913-11	METAL OXIDE	220	5%	3W
R578	1-216-369-00	METAL OXIDE	1	5%	2W
R579	1-216-295-91	SHORT CHIP	0		
R580	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R581	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R582	1-218-760-11	METAL CHIP	220K	0.5%	1/10W
R584	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R585	1-249-385-11	CARBON	2.2	5%	1/4W
R587	1-208-842-11	METAL CHIP	330K	0.5%	1/10W
R588	1-215-888-00	METAL OXIDE	220	5%	2W
R589	1-215-888-00	METAL OXIDE	220	5%	2W
R590	1-215-465-00	METAL	68K	1%	1/4W
R591	1-260-288-11	CARBON	0.47	5%	1/2W
R592	1-208-820-11	METAL CHIP	39K	0.5%	1/10W
R593	1-260-288-11	CARBON	0.47	5%	1/2W
R594	1-260-288-11	CARBON	0.47	5%	1/2W

REF NO.		PART NO.	DESCRIPTION		REMARK	
R595		1-216-073-91	RES-CHIP	10K	5%	1/10W
R596		1-215-916-00	METAL OXIDE	680	5%	3W
R597		1-247-750-11	CARBON	680	5%	1/2W
R598		1-249-438-11	CARBON	56K	5%	1/4W
R599		1-249-389-11	CARBON	4.7	5%	1/4W
R600		1-249-438-11	CARBON	56K	5%	1/4W
R601		1-249-420-11	CARBON	1.8K	5%	1/4W
R602		1-249-389-11	CARBON	4.7	5%	1/4W
R603		1-215-485-00	METAL	470K	1%	1/4W
R604		1-216-097-11	RES-CHIP	100K	5%	1/10W
R607		1-249-425-11	CARBON	4.7K	5%	1/4W
R608		1-240-205-91	METAL	22M	5%	1/2W
R609		1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R610		1-216-073-91	RES-CHIP	10K	5%	1/10W
R611		1-216-089-91	RES-CHIP	47K	5%	1/10W
R612		1-216-045-00	RES-CHIP	680	5%	1/10W
R614		1-216-041-00	RES-CHIP	470	5%	1/10W
R615		1-216-369-00	METAL OXIDE	1	5%	2W
R616		1-260-302-51	CARBON	6.8	5%	1/2W
R617		1-247-791-91	CARBON	22	5%	1/4W
R619		1-260-128-11	CARBON	270K	5%	1/2W
R620	⚠	1-129-720-61	FILM	0.033UF	5.00%	630V
R621		1-215-864-00	METAL OXIDE	150	5%	1W
R623		1-216-095-00	RES-CHIP	82K	5%	1/10W
R624		1-216-089-91	RES-CHIP	47K	5%	1/10W
R626		1-216-049-11	RES-CHIP	1K	5%	1/10W
R627		1-240-251-11	CEMENTED	6.8	5%	10W
R629		1-247-747-11	CARBON	470	5%	1/2W
R630		1-249-429-11	CARBON	10K	5%	1/4W
R631		1-216-089-91	RES-CHIP	47K	5%	1/10W
R632		1-220-886-11	FUSIBLE	0.1	10%	1W
R634	⚠	1-240-917-91	METAL	8.2M	5%	1W
R635		1-216-492-11	METAL OXIDE	82K	5%	3W
R636		1-215-924-00	METAL OXIDE	15K	5%	3W
R637		1-216-492-11	METAL OXIDE	82K	5%	3W
R639		1-216-361-21	METAL OXIDE	0.22	5%	2W
R640		1-249-415-11	CARBON	680	5%	1/4W
R641		1-216-361-21	METAL OXIDE	0.22	5%	2W
R642		1-249-419-11	CARBON	1.5K	5%	1/4W
R643		1-247-843-11	CARBON	3.3K	5%	1/4W
R644		1-249-419-11	CARBON	1.5K	5%	1/4W
R646		1-215-924-00	METAL OXIDE	15K	5%	3W
R647		1-249-387-11	CARBON	3.3	5%	1/4W
R648		1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R649		1-249-417-11	CARBON	1K	5%	1/4W
R650		1-215-882-00	METAL OXIDE	22	5%	2W
R652		1-215-900-11	METAL OXIDE	22K	5%	2W
R653		1-215-873-00	METAL OXIDE	4.7K	5%	1W
R656		1-249-417-11	CARBON	1K	5%	1/4W
R657		1-260-127-11	CARBON	220K	5%	1/2W
R659		1-216-049-11	RES-CHIP	1K	5%	1/10W
R660		1-216-073-91	RES-CHIP	10K	5%	1/10W
R661		1-215-873-00	METAL OXIDE	4.7K	5%	1W
R682		1-533-597-41	LINK, IC			
R909		1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R910		1-216-065-91	RES-CHIP	4.7K	5%	1/10W
			<RELAY>			
RY600	⚠	1-755-299-11	RELAY, AC POWER			
RY601	⚠	1-755-299-11	RELAY, AC POWER			

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

A B1

REF NO.		PART NO.	DESCRIPTION			REMARK
			<SWITCH>			
S501		1-572-707-11	SWITCH, LEVER			
S502		1-572-707-11	SWITCH, LEVER			
			<TRANSFORMER>			
T501		1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE			
T503	⚠	1-453-284-21	TRANSFORMER ASSY FLY BACK (NX-4009//M314)			
T504		1-433-850-11	TRANSFORMER, HORIZONTAL LINEAR			
T505		1-435-869-11	TRANSFORMER, FERRITE (PMT)			
T601	⚠	1-429-707-12	TRANSFORMER, LINE FILTER			
T603	⚠	1-431-976-41	TRANSFORMER, CONVERTER			
T604	⚠	1-431-852-11	TRANSFORMER, CONVERTER (SRT)			
			<THERMISTOR>			
TH600		1-803-586-11	THERMISTOR, NTC			
			<THERMISTOR>			
THP600	⚠	1-803-541-11	THERMISTOR			
			<TUNER>			
TU101		8-598-451-60	TUNER, FSS BTF-WG441			
			<VARISTOR>			
VDR600		1-803-830-11	VARISTOR (ERZV14D621)			
			<CRYSTAL>			
X001		1-781-174-21	VIBRATOR, CERAMIC			
X301		1-781-134-21	VINRATOR, CRYSTAL			
X302		1-781-132-21	VIBRATOR, CRYSTAL			
**********						
	*	A-1131-652-A	B1 BOARD MOUNTED **********			
			<CAPACITOR>			
C1513		1-163-038-91	CERAMIC CHIP	0.1UF		25V
C1514		1-163-038-91	CERAMIC CHIP	0.1UF		25V
C1515		1-163-243-11	CERAMIC CHIP	47PF	5.00%	50V
C1517		1-164-005-11	CERAMIC CHIP	0.47UF		25V
C1518		1-126-967-11	ELECT	47UF	20.00%	50V
C1519		1-163-249-11	CERAMIC CHIP	82PF	5.00%	50V
C1520		1-163-249-11	CERAMIC CHIP	82PF	5.00%	50V
C1522		1-164-005-11	CERAMIC CHIP	0.47UF		25V
C1523		1-163-255-11	CERAMIC CHIP	150PF	5.00%	50V
C1524		1-163-247-91	CERAMIC CHIP	68PF	5.00%	50V
C1525		1-163-249-11	CERAMIC CHIP	82PF	5.00%	50V
C1526		1-163-249-11	CERAMIC CHIP	82PF	5.00%	50V
C1528		1-164-005-11	CERAMIC CHIP	0.47UF		25V
C1529		1-163-255-11	CERAMIC CHIP	150PF	5.00%	50V
C1530		1-163-247-91	CERAMIC CHIP	68PF	5.00%	50V
C1543		1-126-933-11	ELECT	100UF	20.00%	16V
C1544		1-165-319-11	CERAMIC CHIP	0.1UF		50V
C1554		1-165-319-11	CERAMIC CHIP	0.1UF		50V
C1555		1-163-038-91	CERAMIC CHIP	0.1UF		25V
C1556		1-163-038-91	CERAMIC CHIP	0.1UF		25V
			<CONNECTOR>			
CN1501	*	1-564-511-11	PLUG, CONNECTOR 8P			
CN1502	*	1-564-508-11	PLUG, CONNECTOR 5P			
CN1503		1-764-811-11	CONNECTOR, BOARD TO BOARD 10P			
			<DIODE>			
D1501		8-719-158-35	RD9.1S-B			
			<IC>			
IC1502		8-759-439-64	HEF4053BT			
			<COIL>			
L1501		1-414-856-11	INDUCTOR	10UH		
L1506		1-414-857-11	INDUCTOR	100UH		
L1507		1-414-187-11	INDUCTOR	47UH		
L1508		1-414-187-11	INDUCTOR	47UH		
L1509		1-414-857-11	INDUCTOR	100UH		
L1510		1-414-187-11	INDUCTOR	47UH		
L1511		1-414-187-11	INDUCTOR	47UH		
			<TRANSISTOR>			
Q1501		8-729-010-25	MSD601-RT1			
Q1502		8-729-216-22	2SA1162-G			
Q1503		8-729-010-25	MSD601-RT1			
Q1504		8-729-010-25	MSD601-RT1			
Q1505		8-729-010-25	MSD601-RT1			
Q1506		8-729-010-25	MSD601-RT1			
Q1507		8-729-216-22	2SA1162-G			
Q1509		8-729-010-25	MSD601-RT1			
Q1510		8-729-010-25	MSD601-RT1			
Q1511		8-729-216-22	2SA1162-G			
Q1514		8-729-010-25	MSD601-RT1			
Q1515		8-729-010-25	MSD601-RT1			
Q1516		8-729-216-22	2SA1162-G			
Q1520		8-729-010-25	MSD601-RT1			
Q1522		8-729-010-25	MSD601-RT1			
Q1523		8-729-216-22	2SA1162-G			
			<RESISTOR>			
R1501		1-216-049-11	RES-CHIP	1K	5%	1/10W
R1502		1-216-049-11	RES-CHIP	1K	5%	1/10W
R1503		1-216-025-11	RES-CHIP	100	5%	1/10W
R1504		1-216-025-11	RES-CHIP	100	5%	1/10W
R1506		1-216-025-11	RES-CHIP	100	5%	1/10W
R1507		1-216-081-00	RES-CHIP	22K	5%	1/10W
R1508		1-216-073-91	RES-CHIP	10K	5%	1/10W
R1511		1-216-033-00	RES-CHIP	220	5%	1/10W
R1512		1-216-005-00	RES-CHIP	15	5%	1/10W
R1515		1-216-041-00	RES-CHIP	470	5%	1/10W

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R1516	1-216-025-11	RES-CHIP	100	5%	1/10W
R1517	1-216-075-00	RES-CHIP	12K	5%	1/10W
R1520	1-216-079-00	RES-CHIP	18K	5%	1/10W
R1522	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1523	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1528	1-216-033-00	RES-CHIP	220	5%	1/10W
R1529	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R1531	1-216-045-00	RES-CHIP	680	5%	1/10W
R1537	1-216-041-00	RES-CHIP	470	5%	1/10W
R1538	1-216-041-00	RES-CHIP	470	5%	1/10W
R1540	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1541	1-216-041-00	RES-CHIP	470	5%	1/10W
R1542	1-216-041-00	RES-CHIP	470	5%	1/10W
R1543	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1545	1-216-041-00	RES-CHIP	470	5%	1/10W
R1547	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1548	1-216-025-11	RES-CHIP	100	5%	1/10W
R1549	1-216-075-00	RES-CHIP	12K	5%	1/10W
R1551	1-216-081-00	RES-CHIP	22K	5%	1/10W
R1552	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1553	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1554	1-216-033-00	RES-CHIP	220	5%	1/10W
R1556	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1559	1-216-041-00	RES-CHIP	470	5%	1/10W
R1560	1-216-041-00	RES-CHIP	470	5%	1/10W
R1561	1-216-041-00	RES-CHIP	470	5%	1/10W
R1562	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1563	1-216-041-00	RES-CHIP	470	5%	1/10W
R1566	1-216-041-00	RES-CHIP	470	5%	1/10W
R1567	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1568	1-216-041-00	RES-CHIP	470	5%	1/10W
R1569	1-216-049-11	RES-CHIP	1K	5%	1/10W

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*	A-1300-895-A	B10 BOARD COMPLETE			
		**********			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
		<CAPACITOR>			
C1305	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C1307	1-164-346-11	CERAMIC CHIP	1UF		16V
C1310	1-126-947-11	ELECT	47UF	20.00%	16V
C1312	1-126-947-11	ELECT	47UF	20.00%	16V
C1330	1-126-964-11	ELECT	10UF	20.00%	50V
C1333	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C1395	1-163-249-11	CERAMIC CHIP	82PF	5.00%	50V
C1396	1-125-889-91	CERAMIC CHIP	2.2UF	10%	10V
C1401	1-104-661-91	ELECT	330UF	20.00%	16V
C1402	1-126-947-11	ELECT	47UF	20.00%	25V
C1403	1-126-947-11	ELECT	47UF	20.00%	25V
C1404	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C1405	1-126-947-11	ELECT	47UF	20.00%	25V
C1406	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1408	1-126-964-11	ELECT	10UF	20.00%	50V
C1410	1-126-947-11	ELECT	47UF	20.00%	25V
C1411	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C1413	1-126-935-11	ELECT	470UF	20.00%	16V
C1414	1-164-346-11	CERAMIC CHIP	1UF		16V
C1415	1-126-947-11	ELECT	47UF	20.00%	25V

REF NO.	PART NO.	DESCRIPTION		REMARK	
C1416	1-164-346-11	CERAMIC CHIP	1UF		16V
C1418	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C1419	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1421	1-164-346-11	CERAMIC CHIP	1UF		16V
C1422	1-164-346-11	CERAMIC CHIP	1UF		16V
C1423	1-164-346-11	CERAMIC CHIP	1UF		16V
C1425	1-164-346-11	CERAMIC CHIP	1UF		16V
C1426	1-164-346-11	CERAMIC CHIP	1UF		16V
C1428	1-104-665-11	ELECT	100UF	20.00%	25V
C1429	1-104-663-11	ELECT	33UF	20.00%	25V
C1431	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C1432	1-126-933-11	ELECT	100UF	20.00%	16V
C1433	1-126-947-11	ELECT	47UF	20.00%	16V
C1434	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1435	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C1436	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C1439	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1440	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1441	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1442	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1443	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1444	1-164-005-11	CERAMIC CHIP	0.47UF		25V
C1445	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1446	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1447	1-126-964-11	ELECT	10UF	20.00%	50V
C1448	1-164-005-11	CERAMIC CHIP	0.47UF		25V
C1449	1-126-933-11	ELECT	100UF	20.00%	16V
C1457	1-164-346-11	CERAMIC CHIP	1UF		16V
C1459	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1460	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C1461	1-164-346-11	CERAMIC CHIP	1UF		16V
C1462	1-164-346-11	CERAMIC CHIP	1UF		16V
C1464	1-126-933-11	ELECT	100UF	20.00%	16V
C3201	1-126-964-11	ELECT	10UF	20.00%	50V
C3202	1-136-171-00	FILM	0.33UF	5.00%	50V
C3203	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C3220	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C3221	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C3222	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C3223	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C3224	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C3225	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C3226	1-126-964-11	ELECT	10UF	20.00%	50V
C3227	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C3228	1-107-698-11	ELECT	10UF	20.00%	25V
C3229	1-107-698-11	ELECT	10UF	20.00%	25V
C3238	1-164-005-11	CERAMIC CHIP	0.47UF		25V
C3239	1-136-171-00	FILM	0.33UF	5.00%	50V
C3243	1-163-989-11	CERAMIC CHIP	0.033UF	10.00%	25V
C3244	1-164-346-11	CERAMIC CHIP	1UF		16V
C3245	1-164-005-11	CERAMIC CHIP	0.47UF		25V
C3246	1-163-243-11	CERAMIC CHIP	47PF	5.00%	50V
C3247	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3248	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C3249	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C3250	1-164-346-11	CERAMIC CHIP	1UF		16V
C3251	1-126-964-11	ELECT	10UF	20.00%	50V
C3252	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C3253	1-126-933-11	ELECT	100UF	20.00%	16V
C3254	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C3255	1-163-243-11	CERAMIC CHIP	47PF	5.00%	50V
C3256	1-126-963-11	ELECT	4.7UF	20.00%	50V

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REF NO.	PART NO.	DESCRIPTION			REMARK
C3257	1-164-346-11	CERAMIC CHIP	1UF		16V
C3258	1-163-989-11	CERAMIC CHIP	0.033UF	10.00%	25V
C3259	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3260	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C3262	1-126-947-11	ELECT	47UF	20.00%	16V
C3264	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C3301	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C3302	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C3303	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C3304	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C3305	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C3306	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C3307	1-104-665-11	ELECT	100UF	20.00%	25V
C3308	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C3309	1-104-760-11	CERAMIC CHIP	0.047UF	10.00%	50V
C3310	1-104-760-11	CERAMIC CHIP	0.047UF	10.00%	50V
C3311	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C3312	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C3313	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C3314	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C3315	1-164-182-11	CERAMIC CHIP	0.0033UF	10.00%	50V
C3316	1-115-185-11	CERAMIC CHIP	0.033UF	10.00%	50V
C3317	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C3318	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C3319	1-110-501-11	CERAMIC CHIP	0.33UF	10.00%	16V
C3320	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3321	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3322	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3323	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C3324	1-126-964-11	ELECT	10UF	20.00%	50V
C3325	1-104-665-11	ELECT	100UF	20.00%	25V
C3326	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3327	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3328	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3329	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3330	1-126-963-11	ELECT	4.7UF	20.00%	50V
C3331	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C3332	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C3333	1-115-185-11	CERAMIC CHIP	0.033UF	10.00%	50V
C3334	1-164-182-11	CERAMIC CHIP	0.0033UF	10.00%	50V
C3335	1-163-019-00	CERAMIC CHIP	0.0068UF	10.00%	50V
C3336	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C3337	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C3338	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6200	1-216-295-91	SHORT CHIP	0		
C6202	1-128-550-11	ELECT	2200UF	20.00%	50V
C6203	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6204	1-128-550-11	ELECT	2200UF	20.00%	50V
C6205	1-130-495-00	MYLAR	0.1UF	5.00%	50V
C6206	1-128-550-11	ELECT	2200UF	20.00%	50V
C6209	1-130-495-00	MYLAR	0.1UF	5.00%	50V
C6210	1-126-924-11	ELECT	330UF	20.00%	10V
C6211	1-126-924-11	ELECT	330UF	20.00%	10V
C6212	1-126-947-11	ELECT	47UF	20.00%	25V
C6213	1-126-964-11	ELECT	10UF	20.00%	50V
C6217	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6220	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C6222	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C6223	1-126-960-11	ELECT	1UF	20.00%	50V
C6241	1-126-964-11	ELECT	10UF	20.00%	50V
C6244	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C6245	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C6249	1-216-295-91	SHORT CHIP	0		

REF NO.		PART NO.	DESCRIPTION	REMARK
			<CONNECTOR>	
CN1300	*	1-564-506-11	PLUG, CONNECTOR 3P	
CN1400	*	1-564-512-11	PLUG, CONNECTOR 9P	
CN1401	*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P	
CN1403	*	1-564-506-11	PLUG, CONNECTOR 3P	
CN1405	*	1-779-892-11	CONNECTOR, BOARD TO BOARD 10P	
CN1406	*	1-779-892-11	CONNECTOR, BOARD TO BOARD 10P	
CN1407	*	1-779-891-11	CONNECTOR, BOARD TO BOARD 8P	
CN1409		1-764-818-11	CONNECTOR, BOARD TO BOARD 10P	
CN6200	*	1-564-507-11	PLUG, CONNECTOR 4P	
CN6204	*	1-564-509-11	PLUG, CONNECTOR 6P	
CN6206	*	1-564-508-11	PLUG, CONNECTOR 5P	
			<DIODE>	
D1401		8-719-069-60	UDZSTE-179.1B	
D1402		8-719-069-60	UDZSTE-179.1B	
D1403		8-719-069-60	UDZSTE-179.1B	
D1404		8-719-069-60	UDZSTE-179.1B	
D1405		8-719-069-60	UDZSTE-179.1B	
D1406		8-719-069-60	UDZSTE-179.1B	
D1407		8-719-069-60	UDZSTE-179.1B	
D1408		8-719-069-60	UDZSTE-179.1B	
D1409		8-719-069-60	UDZSTE-179.1B	
D1410		8-719-069-60	UDZSTE-179.1B	
D1411		8-719-069-60	UDZSTE-179.1B	
D1412		8-719-069-60	UDZSTE-179.1B	
D1415		8-719-069-60	UDZSTE-179.1B	
D1416		8-719-069-60	UDZSTE-179.1B	
D1418		8-719-069-60	UDZSTE-179.1B	
D3201		8-719-988-61	1SS355TE-17	
D3203		8-719-988-61	1SS355TE-17	
D3301		8-719-404-50	MA111-TX	
D3302		8-719-404-50	MA111-TX	
D6210		8-719-914-42	DA204K	
D6211		8-719-404-50	MA111-TX	
D6212		8-719-404-50	MA111-TX	
			<IC>	
IC1401		8-752-068-46	CXA1855S	
IC1402		8-759-100-96	UPC4558G2	
IC1404		8-759-701-59	NJM78M09FA	
IC3200		8-759-100-96	UPC4558G2	
IC3202		8-759-100-96	UPC4558G2	
IC3204		8-759-100-96	UPC4558G2	
IC3205		8-752-058-68	CXA1315M	
IC3301		8-759-711-10	NJU4066BM	
IC3302		6-702-145-01	IC NJW1139GK1-TE2	
IC6200		8-759-168-24	TA8200AH	
			<JACK>	
J1401		1-784-646-11	TERMINAL, S	
J1402		1-778-387-11	JACK BLOCK, PIN 12P	
			<CHIP CONDUCTOR>	
JR1301		1-216-295-91	SHORT CHIP 0	
JR1405		1-216-295-91	SHORT CHIP 0	
JR1406		1-216-295-91	SHORT CHIP 0	
JR1407		1-216-295-91	SHORT CHIP 0	
JR1409		1-216-295-91	SHORT CHIP 0	

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REF NO.	PART NO.	DESCRIPTION		REMARK
JR1410	1-216-295-91	SHORT CHIP	0	
JR1411	1-216-295-91	SHORT CHIP	0	
JR3204	1-216-295-91	SHORT CHIP	0	
JR3209	1-216-295-91	SHORT CHIP	0	
JR6200	1-216-295-91	SHORT CHIP	0	
JR6202	1-216-295-91	SHORT CHIP	0	
JR6203	1-216-295-91	SHORT CHIP	0	
JR6204	1-216-295-91	SHORT CHIP	0	
JR6206	1-216-295-91	SHORT CHIP	0	
		<COIL>		
L1313	1-414-187-11	INDUCTOR	47UH	
L1314	1-414-856-11	INDUCTOR	10UH	
L1315	1-414-856-11	INDUCTOR	10UH	
L1317	1-414-856-11	INDUCTOR	10UH	
L1404	1-412-537-31	INDUCTOR	100UH	
L3202	1-414-856-11	INDUCTOR	10UH	
		<TRANSISTOR>		
Q1316	8-729-216-22	2SA1162-G		
Q1317	8-729-230-49	2SC2712-YG		
Q1318	8-729-230-49	2SC2712-YG		
Q1323	8-729-230-49	2SC2712-YG		
Q1324	8-729-230-49	2SC2712-YG		
Q1365	8-729-230-49	2SC2712-YG		
Q1372	8-729-230-49	2SC2712-YG		
Q1402	8-729-216-22	2SA1162-G		
Q1403	8-729-230-49	2SC2712-YG		
Q1404	8-729-230-49	2SC2712-YG		
Q1408	8-729-230-49	2SC2712-YG		
Q1409	8-729-230-49	2SC2712-YG		
Q3201	8-729-224-62	2SK246-GR		
Q3202	8-729-230-49	2SC2712-YG		
Q3203	8-729-230-49	2SC2712-YG		
Q3204	8-729-224-62	2SK246-GR		
Q6201	8-729-421-19	UN2213		
Q6203	8-729-421-19	UN2213		
Q6204	8-729-421-19	UN2213		
Q6208	8-729-421-19	UN2213		
		<RESISTOR>		
R1301	1-216-041-00	RES-CHIP	470	5% 1/10W
R1318	1-216-033-00	RES-CHIP	220	5% 1/10W
R1320	1-216-081-00	RES-CHIP	22K	5% 1/10W
R1343	1-216-049-11	RES-CHIP	1K	5% 1/10W
R1344	1-216-025-11	RES-CHIP	100	5% 1/10W
R1345	1-216-041-00	RES-CHIP	470	5% 1/10W
R1346	1-216-041-00	RES-CHIP	470	5% 1/10W
R1347	1-216-025-11	RES-CHIP	100	5% 1/10W
R1350	1-216-085-91	RES-CHIP	33K	5% 1/10W
R1359	1-216-025-11	RES-CHIP	100	5% 1/10W
R1360	1-216-041-00	RES-CHIP	470	5% 1/10W
R1361	1-216-041-00	RES-CHIP	470	5% 1/10W
R1362	1-216-055-00	RES-CHIP	1.8K	5% 1/10W
R1363	1-216-033-00	RES-CHIP	220	5% 1/10W
R1364	1-216-089-91	RES-CHIP	47K	5% 1/10W
R1365	1-216-081-00	RES-CHIP	22K	5% 1/10W
R1366	1-216-295-91	SHORT CHIP	0	
R1368	1-216-049-11	RES-CHIP	1K	5% 1/10W

REF NO.	PART NO.	DESCRIPTION		REMARK
R1369	1-216-025-11	RES-CHIP	100	5% 1/10W
R1370	1-216-041-00	RES-CHIP	470	5% 1/10W
R1371	1-216-039-00	RES-CHIP	390	5% 1/10W
R1372	1-216-041-00	RES-CHIP	470	5% 1/10W
R1397	1-216-045-00	RES-CHIP	680	5% 1/10W
R1400	1-216-105-91	RES-CHIP	220K	5% 1/10W
R1403	1-216-033-00	RES-CHIP	220	5% 1/10W
R1404	1-216-295-91	SHORT CHIP	0	
R1406	1-216-013-00	RES-CHIP	33	5% 1/10W
R1407	1-216-033-00	RES-CHIP	220	5% 1/10W
R1408	1-216-031-00	RES-CHIP	180	5% 1/10W
R1409	1-216-105-91	RES-CHIP	220K	5% 1/10W
R1410	1-216-105-91	RES-CHIP	220K	5% 1/10W
R1411	1-216-089-91	RES-CHIP	47K	5% 1/10W
R1412	1-216-089-91	RES-CHIP	47K	5% 1/10W
R1413	1-216-105-91	RES-CHIP	220K	5% 1/10W
R1414	1-216-025-11	RES-CHIP	100	5% 1/10W
R1417	1-216-025-11	RES-CHIP	100	5% 1/10W
R1418	1-216-025-11	RES-CHIP	100	5% 1/10W
R1421	1-216-057-00	RES-CHIP	2.2K	5% 1/10W
R1424	1-216-073-91	RES-CHIP	10K	5% 1/10W
R1425	1-216-047-91	RES-CHIP	820	5% 1/10W
R1426	1-216-025-11	RES-CHIP	100	5% 1/10W
R1427	1-216-063-91	RES-CHIP	3.9K	5% 1/10W
R1428	1-216-025-11	RES-CHIP	100	5% 1/10W
R1429	1-216-089-91	RES-CHIP	47K	5% 1/10W
R1430	1-216-025-11	RES-CHIP	100	5% 1/10W
R1431	1-216-025-11	RES-CHIP	100	5% 1/10W
R1432	1-216-041-00	RES-CHIP	470	5% 1/10W
R1433	1-216-025-11	RES-CHIP	100	5% 1/10W
R1435	1-216-022-00	RES-CHIP	75	5% 1/10W
R1436	1-216-025-11	RES-CHIP	100	5% 1/10W
R1437	1-216-022-00	RES-CHIP	75	5% 1/10W
R1438	1-216-025-11	RES-CHIP	100	5% 1/10W
R1439	1-216-017-91	RES-CHIP	47	5% 1/10W
R1441	1-216-025-11	RES-CHIP	100	5% 1/10W
R1442	1-216-049-11	RES-CHIP	1K	5% 1/10W
R1443	1-216-049-11	RES-CHIP	1K	5% 1/10W
R1444	1-216-089-91	RES-CHIP	47K	5% 1/10W
R1445	1-216-025-11	RES-CHIP	100	5% 1/10W
R1446	1-216-105-91	RES-CHIP	220K	5% 1/10W
R1447	1-216-025-11	RES-CHIP	100	5% 1/10W
R1448	1-216-043-91	RES-CHIP	560	5% 1/10W
R1449	1-249-429-11	CARBON	10K	5% 1/4W
R1450	1-216-073-91	RES-CHIP	10K	5% 1/10W
R1451	1-216-073-91	RES-CHIP	10K	5% 1/10W
R1452	1-216-089-91	RES-CHIP	47K	5% 1/10W
R1453	1-216-025-11	RES-CHIP	100	5% 1/10W
R1454	1-216-089-91	RES-CHIP	47K	5% 1/10W
R1455	1-216-073-91	RES-CHIP	10K	5% 1/10W
R1456	1-216-113-00	RES-CHIP	470K	5% 1/10W
R1457	1-216-073-91	RES-CHIP	10K	5% 1/10W
R1458	1-216-073-91	RES-CHIP	10K	5% 1/10W
R1459	1-216-025-11	RES-CHIP	100	5% 1/10W
R1460	1-216-033-00	RES-CHIP	220	5% 1/10W
R1461	1-216-025-11	RES-CHIP	100	5% 1/10W
R1463	1-249-429-11	CARBON	10K	5% 1/4W
R1464	1-216-113-00	RES-CHIP	470K	5% 1/10W
R1465	1-216-113-00	RES-CHIP	470K	5% 1/10W
R1466	1-216-033-00	RES-CHIP	220	5% 1/10W
R1467	1-216-057-00	RES-CHIP	2.2K	5% 1/10W
R1468	1-216-093-91	RES-CHIP	68K	5% 1/10W

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R1469	1-216-105-91	RES-CHIP	220K	5%	1/10W
R1470	1-216-105-91	RES-CHIP	220K	5%	1/10W
R1471	1-216-022-00	RES-CHIP	75	5%	1/10W
R1472	1-216-033-00	RES-CHIP	220	5%	1/10W
R1473	1-216-033-00	RES-CHIP	220	5%	1/10W
R1475	1-216-089-91	RES-CHIP	47K	5%	1/10W
R1476	1-216-089-91	RES-CHIP	47K	5%	1/10W
R1477	1-216-047-91	RES-CHIP	820	5%	1/10W
R1478	1-216-051-00	RES-CHIP	1.2K	5%	1/10W
R1479	1-216-105-91	RES-CHIP	220K	5%	1/10W
R1480	1-216-105-91	RES-CHIP	220K	5%	1/10W
R1481	1-216-022-00	RES-CHIP	75	5%	1/10W
R1483	1-216-025-11	RES-CHIP	100	5%	1/10W
R1484	1-216-025-11	RES-CHIP	100	5%	1/10W
R1485	1-216-025-11	RES-CHIP	100	5%	1/10W
R1486	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R1487	1-216-073-91	RES-CHIP	10K	5%	1/10W
R1488	1-216-073-91	RES-CHIP	10K	5%	1/10W
R1489	1-216-022-00	RES-CHIP	75	5%	1/10W
R1490	1-216-025-11	RES-CHIP	100	5%	1/10W
R1491	1-216-025-11	RES-CHIP	100	5%	1/10W
R1492	1-216-021-00	RES-CHIP	68	5%	1/10W
R1493	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R1496	1-216-041-00	RES-CHIP	470	5%	1/10W
R1497	1-216-041-00	RES-CHIP	470	5%	1/10W
R1498	1-216-025-11	RES-CHIP	100	5%	1/10W
R1499	1-216-025-11	RES-CHIP	100	5%	1/10W
R1500	1-216-025-11	RES-CHIP	100	5%	1/10W
R1501	1-216-045-00	RES-CHIP	680	5%	1/10W
R1503	1-216-073-91	RES-CHIP	10K	5%	1/10W
R1504	1-216-073-91	RES-CHIP	10K	5%	1/10W
R1505	1-216-022-00	RES-CHIP	75	5%	1/10W
R1506	1-216-033-00	RES-CHIP	220	5%	1/10W
R1507	1-216-025-11	RES-CHIP	100	5%	1/10W
R3200	1-216-121-11	RES-CHIP	1M	5%	1/10W
R3201	1-216-121-11	RES-CHIP	1M	5%	1/10W
R3202	1-216-097-11	RES-CHIP	100K	5%	1/10W
R3203	1-216-121-11	RES-CHIP	1M	5%	1/10W
R3204	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R3205	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R3206	1-216-039-00	RES-CHIP	390	5%	1/10W
R3207	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3219	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3220	1-216-097-11	RES-CHIP	100K	5%	1/10W
R3221	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3222	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3223	1-216-045-00	RES-CHIP	680	5%	1/10W
R3224	1-216-101-00	RES-CHIP	150K	5%	1/10W
R3229	1-216-025-11	RES-CHIP	100	5%	1/10W
R3230	1-216-025-11	RES-CHIP	100	5%	1/10W
R3231	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3232	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3233	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R3234	1-216-039-00	RES-CHIP	390	5%	1/10W
R3235	1-216-101-00	RES-CHIP	150K	5%	1/10W
R3236	1-216-113-00	RES-CHIP	470K	5%	1/10W
R3237	1-216-045-00	RES-CHIP	680	5%	1/10W
R3238	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3239	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3240	1-216-081-00	RES-CHIP	22K	5%	1/10W
R3241	1-216-093-91	RES-CHIP	68K	5%	1/10W
R3242	1-216-081-00	RES-CHIP	22K	5%	1/10W

REF NO.	PART NO.	DESCRIPTION		REMARK	
R3245	1-216-097-11	RES-CHIP	100K	5%	1/10W
R3246	1-216-045-00	RES-CHIP	680	5%	1/10W
R3251	1-216-101-00	RES-CHIP	150K	5%	1/10W
R3252	1-216-113-00	RES-CHIP	470K	5%	1/10W
R3253	1-216-045-00	RES-CHIP	680	5%	1/10W
R3254	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3255	1-216-121-11	RES-CHIP	1M	5%	1/10W
R3256	1-216-121-11	RES-CHIP	1M	5%	1/10W
R3257	1-216-097-11	RES-CHIP	100K	5%	1/10W
R3258	1-216-121-11	RES-CHIP	1M	5%	1/10W
R3259	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R3262	1-216-101-00	RES-CHIP	150K	5%	1/10W
R3263	1-216-093-91	RES-CHIP	68K	5%	1/10W
R3267	1-216-049-11	RES-CHIP	1K	5%	1/10W
R3268	1-216-049-11	RES-CHIP	1K	5%	1/10W
R3269	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R3271	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R3273	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R3274	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R3301	1-216-079-00	RES-CHIP	18K	5%	1/10W
R3302	1-216-081-00	RES-CHIP	22K	5%	1/10W
R3303	1-216-079-00	RES-CHIP	18K	5%	1/10W
R3304	1-216-077-91	RES-CHIP	15K	5%	1/10W
R3305	1-216-077-91	RES-CHIP	15K	5%	1/10W
R3306	1-216-081-00	RES-CHIP	22K	5%	1/10W
R3307	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3308	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3309	1-216-025-11	RES-CHIP	100	5%	1/10W
R3310	1-216-025-11	RES-CHIP	100	5%	1/10W
R3311	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3312	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3313	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3314	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3315	1-216-295-91	SHORT CHIP	0		
R3318	1-216-295-91	SHORT CHIP	0		
R6201	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R6202	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R6203	1-216-295-91	SHORT CHIP	0		
R6209	1-216-049-11	RES-CHIP	1K	5%	1/10W
R6219	1-216-089-91	RES-CHIP	47K	5%	1/10W
R6245	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R6246	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R6254	1-216-021-00	RES-CHIP	68	5%	1/10W
R6255	1-216-308-00	RES-CHIP	4.7	5%	1/10W
R6258	1-216-021-00	RES-CHIP	68	5%	1/10W
R6259	1-216-308-00	RES-CHIP	4.7	5%	1/10W
R6278	1-216-295-91	SHORT CHIP	0		

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* A-1401-876-A C6 BOARD MOUNTED
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4-382-854-11 SCREW (M3X10), P, SW (+)

<CAPACITOR>

C701	1-115-350-51	CERAMIC	0.0047UF		2KV
C702	1-102-074-00	CERAMIC	0.001UF	10.00%	50V
C708	1-102-114-00	CERAMIC	470PF	10.00%	50V
C709	1-102-114-00	CERAMIC	470PF	10.00%	50V
C710	1-102-114-00	CERAMIC	470PF	10.00%	50V

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

C6

REF NO.		PART NO.	DESCRIPTION		REMARK	
C712		1-102-115-00	CERAMIC	560PF	10.00%	50V
C713		1-102-112-00	CERAMIC	330PF	10.00%	50V
C714		1-102-112-00	CERAMIC	330PF	10.00%	50V
C716		1-126-933-11	ELECT	100UF	20.00%	16V
C717		1-107-651-11	ELECT	4.7UF	20.00%	250V
C718		1-102-106-00	CERAMIC	100PF	10.00%	50V
C1800		1-126-964-11	ELECT	10UF	20.00%	50V
C1803		1-126-964-11	ELECT	10UF	20.00%	50V
C1804		1-126-964-11	ELECT	10UF	20.00%	50V
C1809		1-126-942-61	ELECT	1000UF	20.00%	25V
C1810		1-102-106-00	CERAMIC	100PF	10.00%	50V
			<CONNECTOR>			
CN700		1-695-915-11	TAB (CONTACT)			
CN702		1-695-915-11	TAB (CONTACT)			
CN703	*	1-564-509-11	PLUG, CONNECTOR 6P			
CN704		1-695-915-11	TAB (CONTACT)			
CN712		1-564-507-11	PLUG, CONNECTOR 4P			
CN1801	*	1-564-509-11	PLUG, CONNECTOR 6P			
CN1802	*	1-564-506-11	PLUG, CONNECTOR 3P			
			<DIODE>			
D701		8-719-911-19	1SS119-25			
D702		8-719-911-19	1SS119-25			
D703		8-719-911-19	1SS119-25			
D704		8-719-911-19	1SS119-25			
D705		8-719-911-19	1SS119-25			
D706		8-719-911-19	1SS119-25			
D707		8-719-911-19	1SS119-25			
D708		8-719-911-19	1SS119-25			
D709		8-719-911-19	1SS119-25			
D710		8-719-911-19	1SS119-25			
D711		8-719-911-19	1SS119-25			
D712		8-719-911-19	1SS119-25			
D716		8-719-911-19	1SS119-25			
D717		8-719-070-16	NNCD9.1A-T1			
D1803		8-719-911-19	1SS119-25			
D1804		8-719-911-19	1SS119-25			
D1808		8-719-908-03	GP08D			
			<IC>			
IC1800		8-759-822-38	LA6510			
			<JACK>			
J701	⚠	1-540-071-22	SOCKET, CRT			
			<COIL>			
L701		1-410-667-31	INDUCTOR	22UH		
L703		1-414-186-31	INDUCTOR	33UH		
L705		1-414-186-31	INDUCTOR	33UH		
L707		1-414-187-11	INDUCTOR	47UH		
			<TRANSISTOR>			
Q701		8-729-326-11	2SC2611			
Q702		8-729-326-11	2SC2611			
Q703		8-729-326-11	2SC2611			
Q704		8-729-326-11	2SC2611			
Q705		8-729-326-11	2SC2611			
Q706		8-729-326-11	2SC2611			
Q707		8-729-200-17	2SA1091-O			
Q708		8-729-200-17	2SA1091-O			
Q709		8-729-200-17	2SA1091-O			
Q710		8-729-119-78	2SC2785-HFE			
Q711		8-729-119-78	2SC2785-HFE			
Q712		8-729-119-78	2SC2785-HFE			
Q714		8-729-255-12	2SC2551-O			
Q1800		8-729-119-76	2SA1175-HFE			
Q1802		8-729-119-78	2SC2785-HFE			
			<RESISTOR>			
R701		1-219-752-11	METAL	100K	5%	1/2W
R705		1-243-510-21	METAL OXIDE	1.8	5%	3W
R710		1-243-618-21	METAL OXIDE	10K	5%	3W
R711		1-260-328-11	CARBON	1K	5%	1/2W
R712		1-243-618-21	METAL OXIDE	10K	5%	3W
R713		1-260-330-11	CARBON	1.5K	5%	1/2W
R714		1-243-618-21	METAL OXIDE	10K	5%	3W
R715		1-260-330-11	CARBON	1.5K	5%	1/2W
R716		1-249-405-11	CARBON	100	5%	1/4W
R717		1-249-405-11	CARBON	100	5%	1/4W
R718		1-249-405-11	CARBON	100	5%	1/4W
R719		1-215-469-00	METAL	100K	1%	1/4W
R720		1-249-923-11	CARBON	1K	5%	1/4W
R722		1-249-923-11	CARBON	1K	5%	1/4W
R723		1-215-469-00	METAL	100K	1%	1/4W
R724		1-249-923-11	CARBON	1K	5%	1/4W
R725		1-249-424-11	CARBON	3.9K	5%	1/4W
R726		1-249-424-11	CARBON	3.9K	5%	1/4W
R727		1-249-424-11	CARBON	3.9K	5%	1/4W
R728		1-249-408-11	CARBON	180	5%	1/4W
R729		1-249-408-11	CARBON	180	5%	1/4W
R730		1-249-408-11	CARBON	180	5%	1/4W
R731		1-249-401-11	CARBON	47	5%	1/4W
R732		1-249-401-11	CARBON	47	5%	1/4W
R733		1-249-401-11	CARBON	47	5%	1/4W
R734		1-219-743-11	METAL	100	5%	1/2W
R738		1-247-807-31	CARBON	100	5%	1/4W
R739		1-247-807-31	CARBON	100	5%	1/4W
R740		1-247-807-31	CARBON	100	5%	1/4W
R747		1-215-926-00	METAL OXIDE	33K	5%	3W
R749		1-215-927-00	METAL OXIDE	47K	5%	3W
R751		1-215-926-00	METAL OXIDE	33K	5%	3W
R753		1-249-429-11	CARBON	10K	5%	1/4W
R755		1-249-427-11	CARBON	6.8K	5%	1/4W
R756		1-249-427-11	CARBON	6.8K	5%	1/4W
R757		1-249-427-11	CARBON	6.8K	5%	1/4W
R758		1-249-419-11	CARBON	1.5K	5%	1/4W
R759		1-249-419-11	CARBON	1.5K	5%	1/4W
R760		1-249-419-11	CARBON	1.5K	5%	1/4W
R1800		1-249-417-11	CARBON	1K	5%	1/4W
R1801		1-249-426-11	CARBON	5.6K	5%	1/4W
R1802		1-249-382-11	CARBON	1.2	5%	1/4W
R1803		1-249-382-11	CARBON	1.2	5%	1/4W
R1805		1-249-429-11	CARBON	10K	5%	1/4W
R1806		1-249-425-11	CARBON	4.7K	5%	1/4W

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

C6 D3 F

REF NO.	PART NO.	DESCRIPTION		REMARK	
R1808	1-249-425-11	CARBON	4.7K	5%	1/4W
R1809	1-249-435-11	CARBON	33K	5%	1/4W
R1810	1-249-435-11	CARBON	33K	5%	1/4W
R1811	1-249-433-11	CARBON	22K	5%	1/4W
R1812	1-249-435-11	CARBON	33K	5%	1/4W
R1821	1-249-433-11	CARBON	22K	5%	1/4W
R1822	1-249-435-11	CARBON	33K	5%	1/4W
R1823	1-249-426-11	CARBON	5.6K	5%	1/4W
R1824	1-249-435-11	CARBON	33K	5%	1/4W
R1825	1-247-843-11	CARBON	3.3K	5%	1/4W
		<VARIABLE RESISTOR>			
RV702	1-241-656-11	RES, ADJ, METAL FILM 110M			
RV1801	1-238-019-11	RES, ADJ, CARBON 47K			

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* A-1401-875-A D3 BOARD MOUNTED
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<CAPACITOR>

C2800	1-126-947-11	ELECT	47UF	20.00%	25V
C2801	1-106-220-00	MYLAR	0.1UF	10.00%	100V
C2802	1-136-155-00	FILM	0.015UF	5.00%	50V
C2803	1-129-723-00	FILM	0.056UF	5.00%	630V
C2805	1-126-947-11	ELECT	47UF	20.00%	25V
C2806	1-106-383-00	MYLAR	0.047UF	5.00%	100V
C2807	1-137-194-81	FILM	0.47UF	5.00%	50V
C2808	1-126-964-11	ELECT	10UF	20.00%	50V
C2809	1-137-194-81	FILM	0.47UF	5.00%	50V
C2810	1-106-375-12	MYLAR	0.022UF	10.00%	250V
C2811	1-126-964-11	ELECT	10UF	20.00%	50V
C2812	1-126-964-11	ELECT	10UF	20.00%	50V
C2813	1-129-708-91	FILM	0.0033UF	5.00%	630V

<CONNECTOR>

CN2800	*	1-564-510-11	PLUG, CONNECTOR 7P
CN2802	*	1-564-506-11	PLUG, CONNECTOR 3P
CN2803		1-695-915-11	TAB (CONTACT)

<DIODE>

D2800	8-719-302-43	EL1Z
D2801	8-719-911-19	1SS119-25
D2802	8-719-911-19	1SS119-25
D2803	8-719-911-19	1SS119-25

<IC>

IC2800	8-759-701-59	NJM78M09FA
IC2801	8-759-998-98	LM358D

<COIL>

L2800	1-406-989-71	INDUCTOR	0UH		
L2802	1-406-987-21	INDUCTOR	4.7MH		
L2803	1-406-986-21	INDUCTOR	3.3UH		
L2804	1-406-678-11	INDUCTOR	15MH		

REF NO.	PART NO.	DESCRIPTION		REMARK	
		<TRANSISTOR>			
Q2800	8-729-119-78	2SC2785-HFE			
Q2801	8-729-195-82	2SC2958			
Q2802	8-729-017-06	2SC4793			
Q2803	8-729-216-22	2SA1162-G			
Q2804	8-729-010-25	MSD601-RT1			
		<RESISTOR>			
R2800	1-249-405-11	CARBON	100	5%	1/4W
R2802	1-260-111-11	CARBON	10K	5%	1/2W
R2803	1-260-111-11	CARBON	10K	5%	1/2W
R2804	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R2805	1-216-097-11	RES-CHIP	100K	5%	1/10W
R2806	1-249-421-11	CARBON	2.2K	5%	1/4W
R2807	1-249-420-11	CARBON	1.8K	5%	1/4W
R2808	1-215-857-71	METAL OXIDE	10	5%	1W
R2809	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R2810	1-216-049-11	RES-CHIP	1K	5%	1/10W
R2811	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R2812	1-216-081-00	RES-CHIP	22K	5%	1/10W
R2813	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R2814	1-216-121-11	RES-CHIP	1M	5%	1/10W
R2815	1-216-085-91	RES-CHIP	33K	5%	1/10W
R2816	1-216-107-00	RES-CHIP	270K	5%	1/10W
R2817	1-216-107-00	RES-CHIP	270K	5%	1/10W
		<TRANSFORMER>			
T2800	1-413-059-00	TRANSFORMER, FERRITE (DFT)			

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* A-1401-812-A F BOARD MOUNTED
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1-533-223-11 CLIP, FUSE

<CAPACITOR>

C654	⚠	1-117-703-51	CERAMIC	0.0047UF	99%	250V
C4601	⚠	1-113-511-11	MYLAR	0.47UF	20.00%	250V
C4602	⚠	1-113-512-11	MYLAR	0.68UF	20.00%	250V

<CONNECTOR>

CN4601	*	1-580-843-11	PIN, CONNECTOR (POWER)
CN4602	*	1-580-843-11	PIN, CONNECTOR (POWER)
CN4603		1-695-915-11	TAB (CONTACT)

<FUSE>

F4601	⚠	1-576-334-11	FUSE, TIME-LAG 5A/250V

<RESISTOR>

R4601	⚠	1-219-759-91	METAL	1M	5%	1/2W

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

F H1 H2

REF NO.		PART NO.	DESCRIPTION			REMARK
			<TRANSFORMER>			
T4601	⚠	1-429-707-12	TRANSFORMER, LINE FILTER			
T4602	⚠	1-435-214-11	TRANSFORMER, LINE FILTER			
**********						
	*	A-1400-972-A	H1 BOARD MOUNTED			
			**********			
			<CAPACITOR>			
C3900		1-136-153-00	FILM	0.01UF	5.00%	50V
C3902		1-136-153-00	FILM	0.01UF	5.00%	50V
C3904		1-126-947-11	ELECT	47UF	20.00%	25V
C3905		1-126-963-11	ELECT	4.7UF	20.00%	50V
C3906		1-126-963-11	ELECT	4.7UF	20.00%	50V
C3910		1-126-947-11	ELECT	47UF	20.00%	16V
C3911		1-126-947-11	ELECT	47UF	20.00%	16V
C3913		1-126-960-11	ELECT	1UF	20.00%	50V
			<CONNECTOR>			
CN3901	*	1-564-507-11	PLUG, CONNECTOR 4P			
CN3902		1-564-509-11	PLUG, CONNECTOR 6P			
CN3904	*	1-564-512-11	PLUG, CONNECTOR 9P			
CN3905	*	1-564-512-11	PLUG, CONNECTOR 9P			
CN3907	*	1-564-521-11	PLUG, CONNECTOR 6P			
			<DIODE>			
D3900		8-719-070-16	NNCD9.1A-T1			
D3901		8-719-070-16	NNCD9.1A-T1			
D3905		8-719-070-16	NNCD9.1A-T1			
D3907		8-719-070-16	NNCD9.1A-T1			
D3908		8-719-070-16	NNCD9.1A-T1			
			<JACK>			
J3901		1-750-264-11	JACK			
J3902		1-784-646-11	TERMINAL, S			
J3903		1-770-329-13	JACK, PIN 3P			
			<COIL>			
L3901		1-414-183-41	INDUCTOR	10UH		
L3902		1-414-183-41	INDUCTOR	10UH		
			<TRANSISTOR>			
Q3901		8-729-030-02	DTC144ESA			
Q3902		8-729-030-02	DTC144ESA			
			<RESISTOR>			
R3900		1-249-411-11	CARBON	330	5%	1/4W
R3901		1-249-411-11	CARBON	330	5%	1/4W
R3902		1-247-804-11	CARBON	75	5%	1/4W
R3904		1-249-429-11	CARBON	10K	5%	1/4W
R3905		1-249-429-11	CARBON	10K	5%	1/4W

REF NO.	PART NO.	DESCRIPTION			REMARK
R3907	1-249-426-11	CARBON	5.6K	5%	1/4W
R3908	1-249-413-11	CARBON	470	5%	1/4W
R3909	1-249-417-11	CARBON	1K	5%	1/4W
R3910	1-249-420-11	CARBON	1.8K	5%	1/4W
R3911	1-249-411-11	CARBON	330	5%	1/4W
R3912	1-247-843-11	CARBON	3.3K	5%	1/4W
R3913	1-249-429-11	CARBON	10K	5%	1/4W
R3914	1-249-411-11	CARBON	330	5%	1/4W
R3915	1-249-429-11	CARBON	10K	5%	1/4W
R3916	1-249-401-11	CARBON	47	5%	1/4W
R3917	1-247-804-11	CARBON	75	5%	1/4W
R3918	1-247-807-31	CARBON	100	5%	1/4W
R3919	1-249-409-11	CARBON	220	5%	1/4W
R3920	1-247-807-31	CARBON	100	5%	1/4W
R3921	1-247-807-31	CARBON	100	5%	1/4W
R3922	1-249-421-11	CARBON	2.2K	5%	1/4W
		<SWITCH>			
S3902	1-692-431-21	SWITCH, TACTILE			
S3903	1-692-431-21	SWITCH, TACTILE			
S3904	1-692-431-21	SWITCH, TACTILE			
S3905	1-692-431-21	SWITCH, TACTILE			
S3906	1-692-431-21	SWITCH, TACTILE			
S3907	1-692-431-21	SWITCH, TACTILE			
S3908	1-692-431-21	SWITCH, TACTILE			

****

	*	A-1400-973-A	H2 BOARD MOUNTED			
			**********			
	*	4-055-304-01	HOLDER, LED			
			<CAPACITOR>			
C3912		1-102-114-00	CERAMIC	470PF	10.00%	50V
			<CONNECTOR>			
CN3601	*	1-580-844-11	PIN, CONNECTOR (POWER)			
CN3602	*	1-580-844-11	PIN, CONNECTOR (POWER)			
CN3603	*	1-564-521-11	PLUG, CONNECTOR 6P			
			<DIODE>			
D3906		8-719-083-18	DIODE SPB-25MVWF			
			<IC>			
IC3901		6-600-129-01	IC RPM7140-H5			
			<SWITCH>			
S3601	⚠	1-571-433-31	SWITCH, PUSH (AC POWER)			

J V1

REF NO.	PART NO.	DESCRIPTION			REMARK
**********					
*	A-1400-975-A	J BOARD MOUNTED			
		**********			
		<CAPACITOR>			
C2410	1-126-967-11	ELECT	47UF	20.00%	50V
C2411	1-126-967-11	ELECT	47UF	20.00%	50V
C2412	1-126-967-11	ELECT	47UF	20.00%	50V
C2413	1-102-112-00	CERAMIC	330PF	10.00%	50V
C2414	1-102-112-00	CERAMIC	330PF	10.00%	50V
C2418	1-126-960-11	ELECT	1UF	20.00%	50V
C2419	1-126-960-11	ELECT	1UF	20.00%	50V
		<CONNECTOR>			
CN2410 *	1-564-523-11	PLUG, CONNECTOR 8P			
		<DIODE>			
D2410	8-719-070-16	NNCD9.1A-T1			
D2411	8-719-070-16	NNCD9.1A-T1			
D2412	8-719-070-16	NNCD9.1A-T1			
D2414	8-719-070-16	NNCD9.1A-T1			
D2415	8-719-070-16	NNCD9.1A-T1			
		<JACK>			
J2410	1-784-623-11	BLOCK, PIN JACK 5P			
		<RESISTOR>			
R2410	1-247-804-11	CARBON	75	5%	1/4W
R2411	1-247-804-11	CARBON	75	5%	1/4W
R2412	1-247-804-11	CARBON	75	5%	1/4W
R2414	1-247-887-00	CARBON	220K	5%	1/4W
R2415	1-247-807-31	CARBON	100	5%	1/4W
R2417	1-247-887-00	CARBON	220K	5%	1/4W
R2418	1-247-807-31	CARBON	100	5%	1/4W
R2419	1-249-409-11	CARBON	220	5%	1/4W
R2420	1-249-409-11	CARBON	220	5%	1/4W
R2421	1-249-409-11	CARBON	220	5%	1/4W
**********					
*	A-1347-164-A	V1 BOARD COMPLETE			
		**********			
		<CAPACITOR>			
C801	1-126-947-11	ELECT	47UF	20.00%	16V
C805	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C806	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C814	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C815	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C816	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C817	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C818	1-163-239-11	CERAMIC CHIP	33PF	5.00%	50V
C820	1-163-239-11	CERAMIC CHIP	33PF	5.00%	50V
C821	1-163-038-91	CERAMIC CHIP	0.1UF		25V

REF NO.	PART NO.	DESCRIPTION			REMARK
C822	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C823	1-126-933-11	ELECT	100UF	20.00%	16V
C826	1-126-963-11	ELECT	4.7UF	20.00%	50V
C829	1-163-247-91	CERAMIC CHIP	68PF	5.00%	50V
C830	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C831	1-126-933-11	ELECT	100UF	20.00%	16V
C832	1-126-964-11	ELECT	10UF	20.00%	50V
C835	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C837	1-126-933-11	ELECT	100UF	20.00%	16V
		<CONNECTOR>			
CN801 *	1-774-812-11	CONNECTOR, BOARD TO BOARD 7P			
CN803 *	1-774-812-11	CONNECTOR, BOARD TO BOARD 7P			
		<DIODE>			
D802	8-719-941-09	DAP202U			
D803	8-719-105-46	RD3.3M-B2			
D804	8-719-105-91	RD5.6M-B2			
		<FERRITE BEAD>			
FB801	1-410-397-21	FERRITE	1.1UH		
FB802	1-410-397-21	FERRITE	1.1UH		
FB803	1-410-397-21	FERRITE	1.1UH		
FB804	1-414-223-11	INDUCTOR	470UH		
FB805	1-410-397-21	FERRITE	1.1UH		
		<IC>			
IC801	8-759-476-87	SAA5261			
		<CHIP CONDUCTOR>			
JR800	1-216-295-91	SHORT CHIP	0		
JR801	1-216-295-91	SHORT CHIP	0		
JR802	1-216-295-91	SHORT CHIP	0		
JR804	1-216-295-91	SHORT CHIP	0		
JR805	1-216-295-91	SHORT CHIP	0		
		<TRANSISTOR>			
Q801	8-729-120-28	2SC1623-L5L6			
Q803	8-729-120-28	2SC1623-L5L6			
Q805	8-729-120-28	2SC1623-L5L6			
Q806	8-729-120-28	2SC1623-L5L6			
Q807	8-729-120-28	2SC1623-L5L6			
Q808	8-729-120-28	2SC1623-L5L6			
Q810	8-729-120-28	2SC1623-L5L6			
Q811	8-729-019-01	2SD2394-EF			
Q817	8-729-421-22	UN2211			
		<RESISTOR>			
R800	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R801	1-216-295-91	SHORT CHIP	0		
R802	1-216-025-11	RES-CHIP	100	5%	1/10W
R803	1-216-295-91	SHORT CHIP	0		
R804	1-216-295-91	SHORT CHIP	0		
R805	1-216-295-91	SHORT CHIP	0		
R807	1-216-295-91	SHORT CHIP	0		

V1 VM1

REF NO.	PART NO.	DESCRIPTION			REMARK
R813	1-216-295-91	SHORT CHIP	0		
R820	1-216-073-91	RES-CHIP	10K	5%	1/10W
R821	1-216-083-00	RES-CHIP	27K	5%	1/10W
R822	1-216-025-11	RES-CHIP	100	5%	1/10W
R824	1-216-295-91	SHORT CHIP	0		
R825	1-216-295-91	SHORT CHIP	0		
R827	1-216-295-91	SHORT CHIP	0		
R828	1-216-025-11	RES-CHIP	100	5%	1/10W
R829	1-216-025-11	RES-CHIP	100	5%	1/10W
R830	1-216-295-91	SHORT CHIP	0		
R831	1-216-295-91	SHORT CHIP	0		
R832	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R835	1-216-295-91	SHORT CHIP	0		
R839	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R841	1-216-025-11	RES-CHIP	100	5%	1/10W
R842	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R843	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R844	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R845	1-216-049-11	RES-CHIP	1K	5%	1/10W
R846	1-216-049-11	RES-CHIP	1K	5%	1/10W
R847	1-216-049-11	RES-CHIP	1K	5%	1/10W
R848	1-216-049-11	RES-CHIP	1K	5%	1/10W
R849	1-216-049-11	RES-CHIP	1K	5%	1/10W
R850	1-216-105-91	RES-CHIP	220K	5%	1/10W
R851	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R853	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R857	1-216-077-91	RES-CHIP	15K	5%	1/10W
R861	1-216-049-11	RES-CHIP	1K	5%	1/10W
R862	1-260-095-11	CARBON	470	5%	1/2W
R863	1-216-049-11	RES-CHIP	1K	5%	1/10W
R864	1-216-041-00	RES-CHIP	470	5%	1/10W
R866	1-215-880-00	METAL OXIDE	10	5%	2W
R871	1-216-037-00	RES-CHIP	330	5%	1/10W
R879	1-216-073-91	RES-CHIP	10K	5%	1/10W
R880	1-216-041-00	RES-CHIP	470	5%	1/10W
R882	1-216-049-11	RES-CHIP	1K	5%	1/10W
R884	1-216-025-11	RES-CHIP	100	5%	1/10W
		<CRYSTAL>			
X801	1-578-774-11	VIBRATOR, CRYSTAL			

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*	A-1401-877-A	VM1 BOARD MOUNTED	
		**********	
	4-382-854-11	SCREW (M3X10), P, SW (+)	
		<CAPACITOR>	
C5900	1-102-115-00	CERAMIC	560PF 10.00% 50V
C5902	1-104-661-91	ELECT	330UF 20.00% 16V
C5903	1-161-830-00	CERAMIC	0.0047UF 500V
C5905	1-126-935-11	ELECT	470UF 20.00% 10V
C5906	1-130-491-00	MYLAR	0.047UF 5.00% 50V
C5907	1-107-638-11	ELECT	33UF 20.00% 160V
C5908	1-106-383-00	MYLAR	0.047UF 10.00% 200V
C5909	1-126-933-11	ELECT	100UF 20.00% 16V
C5910	1-130-471-00	MYLAR	0.001UF 5.00% 50V
C5911	1-107-949-11	ELECT	2.2UF 20.00% 160V

REF NO.	PART NO.	DESCRIPTION			REMARK
C5912	1-104-999-11	MYLAR	0.1UF	10.00%	200V
C5913	1-130-471-00	MYLAR	0.001UF	5.00%	50V
C5914	1-126-933-11	ELECT	100UF	20.00%	16V
C5916	1-130-491-00	MYLAR	0.047UF	5.00%	50V
C5917	1-126-935-11	ELECT	470UF	20.00%	10V
C5918	1-102-244-00	CERAMIC	220PF	10.00%	500V
C5919	1-136-165-00	FILM	0.1UF	5.00%	50V
		<CONNECTOR>			
CN2801 *	1-564-506-11	PLUG, CONNECTOR 3P			
CN5901 *	1-564-510-11	PLUG, CONNECTOR 7P			
CN5904 *	1-770-723-11	CONNECTOR, BOARD TO BOARD 8P			
		<DIODE>			
D5901	8-719-911-19	1SS119-25			
D5902	8-719-110-86	RD39ES-B			
D5903	8-719-911-19	1SS119-25			
D5904	8-719-110-86	RD39ES-B			
D5905	8-719-911-19	1SS119-25			
D5906	1-249-406-11	CARBON	120	5%	1/4W
D5907	1-249-406-11	CARBON	120	5%	1/4W
		<COIL>			
L5901	1-414-187-11	INDUCTOR	47UH		
		<TRANSISTOR>			
Q5901	8-729-230-45	2SC2458-YGR			
Q5902	8-729-809-26	2SA1606-E			
Q5903	8-729-230-45	2SC2458-YGR			
Q5904	8-729-119-76	2SA1175-HFE			
Q5905	8-729-230-45	2SC2458-YGR			
Q5906	8-729-809-29	2SC4159-E			
Q5907	8-729-230-45	2SC2458-YGR			
		<RESISTOR>			
R5901	1-249-401-11	CARBON	47	5%	1/4W
R5902	1-249-414-11	CARBON	560	5%	1/4W
R5903	1-247-734-11	CARBON	39	5%	1/2W
R5904	1-249-411-11	CARBON	330	5%	1/4W
R5905	1-249-417-11	CARBON	1K	5%	1/4W
R5906	1-249-417-11	CARBON	1K	5%	1/4W
R5907	1-249-417-11	CARBON	1K	5%	1/4W
R5908	1-249-383-11	CARBON	1.5	5%	1/4W
R5909	1-249-409-11	CARBON	220	5%	1/4W
R5910	1-249-403-11	CARBON	68	5%	1/4W
R5911	1-249-439-11	CARBON	68K	5%	1/4W
R5912	1-249-437-11	CARBON	47K	5%	1/4W
R5914	1-249-403-11	CARBON	68	5%	1/4W
R5915	1-249-429-11	CARBON	10K	5%	1/4W
R5916	1-249-419-11	CARBON	1.5K	5%	1/4W
R5917	1-249-416-11	CARBON	820	5%	1/4W
R5918	1-249-429-11	CARBON	10K	5%	1/4W
R5919	1-249-417-11	CARBON	1K	5%	1/4W
R5920	1-249-439-11	CARBON	68K	5%	1/4W
R5921	1-216-476-11	METAL OXIDE	180	5%	3W

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R5922	1-249-414-11	CARBON	560	5%	1/4W
R5923	1-249-383-11	CARBON	1.5	5%	1/4W
R5925	1-249-400-11	CARBON	39	5%	1/4W
R5927	1-249-416-11	CARBON	820	5%	1/4W
R5929	1-215-880-00	METAL OXIDE	10	5%	2W

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ACCESSORIES AND PACKING MATERIALS
****

	3-701-910-00	SCREW, SPECIAL (DIA. 3.8X20)
*	4-029-168-01	BAG, PROTECTION
*	4-054-319-01	TRAY
	4-065-210-01	JOINT
*	4-089-237-01	CUSHION (UPPER)
*	4-089-238-01	CUSHION (LOWER)
*	4-091-600-01	INDIVIDUAL CARTON
	4-090-530-11	MANUAL, INSTRUCTION
	4-392-003-11	BAND, HOLD
	4-392-004-11	CLIP

****

REMOTE COMMANDER
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	1-477-407-11	REMOTE COMMANDER (RM-995)
	4-079-833-01	BATTERY COVER REMOTE COMMANDER

Sony Corporation
Sony Technology Malaysia Sdn. Bhd.
Visual Products

9-872-335-01

English
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SONY

4-090-530-**11** (1)

Trinitron Color TV

Operating Instructions **GB**

- Before operating the unit, please read this manual thoroughly and retain it for future reference.

FD Trinitron
WEGA

KV-AR29
KV-AR25

M31

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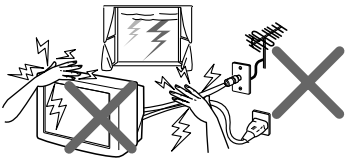
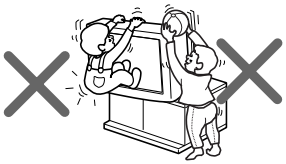
WARNING

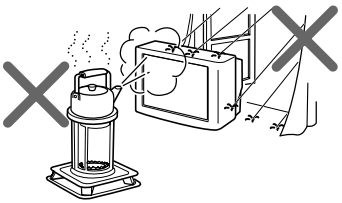
- Dangerously high voltages are present inside the TV.
- TV operating voltage: 220-240 V AC.
- Do not plug in the power cord until you have completed making all other connections; otherwise a minimum leakage current might flow through the antenna and other terminals to ground.
- To avoid battery leakage and damage to the remote, remove the batteries from the remote if you are not going to use it for several days. If any liquid leaks from the batteries and touches your skin, immediately wash it away with water.



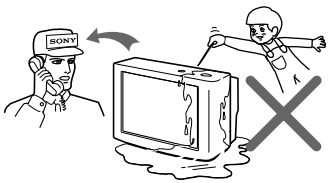
For your own safety, do not touch any part of the TV, the power cord and the antenna cable during lightning storms.



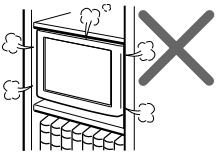
For children's safety, do not leave children alone with the TV. Do not allow children to climb onto it.



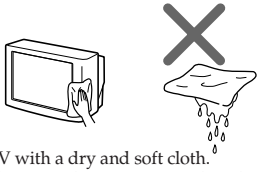
To prevent fire or shock hazard, do not expose the TV to rain or moisture.



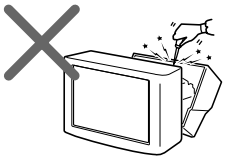
Do not operate the TV if any liquid or solid object falls into it. Have it checked immediately by qualified personnel only.



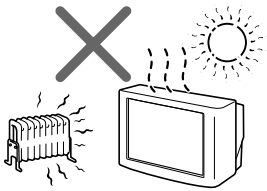
Do not block the ventilation openings of the TV.
Do not install the TV in a confined space, such as a bookcase or built-in cabinet.



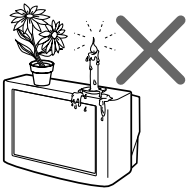
Clean the TV with a dry and soft cloth.
Do not use benzine, thinner, or any other chemicals to clean the TV. Do not attach anything (e. g., adhesive tape, cellophane tape, glue) on the painted cabinet of the TV. Do not scratch the picture tube.



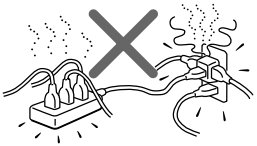
Do not open the cabinet and the rear cover of the TV as high voltages and other hazards are present inside the TV. Refer servicing and disposal of the TV to qualified personnel.



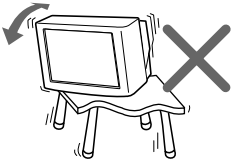
Your TV is recommended for home use only.
Do not use the TV in any vehicle or where it may be subject to excessive dust, heat, moisture or vibrations.



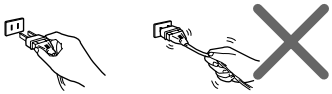
Do not place any objects on the TV.



Do not plug in too many appliances to the same power socket. Do not damage the power cord.



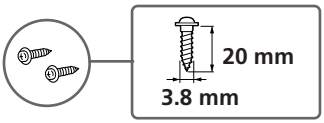
Install the TV on a stable TV stand and floor which can support the TV set weight. Ensure that the TV stand surface is flat and its area is larger than the bottom area of the TV.



Pull the power cord out by the plug. Do not pull the power cord itself. Even if your TV is turned off, it is still connected to the AC power source (mains) as long as the power cord is plugged in. Unplug the TV before moving it or if you are not going to use it for several days.

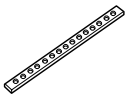
■ Securing the TV

To prevent the TV from falling, use the supplied screws, clamps and band to secure the TV.

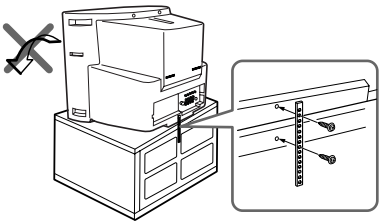


screws

clamps

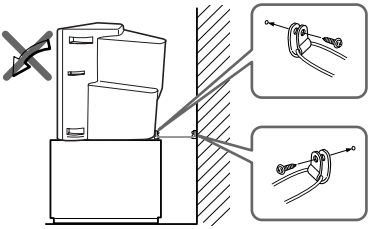


band



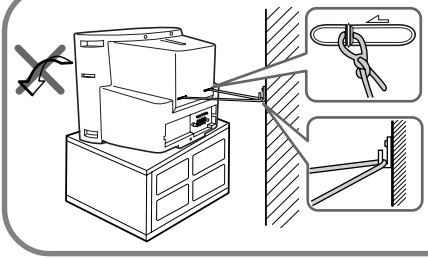
Screw the band to the TV stand and to the provided hole at the rear of your TV.

or



(1) Put a cord or chain through the clamps.
(2) Screw one clamp to a wall or pillar and the other clamp to the provided hole at the rear of your TV.

or



(1) Attach each end of a cord or chain to the provided holders at the rear of your TV.
(2) Securely fix the attached cord or chain to a wall or pillar using an attachment which can support the TV set weight.

Note

- Use only the supplied screws. Use of other screws may damage the TV.

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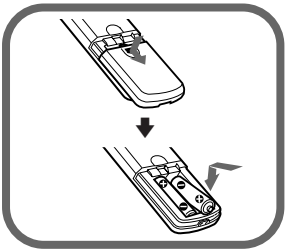
GB

■ Getting Started

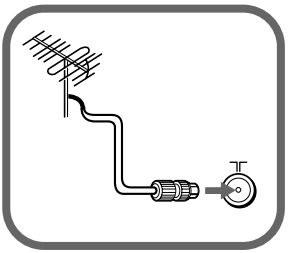


Step 1

Insert the batteries (supplied) into the remote.

Note

- Do not use old or different types of batteries together.

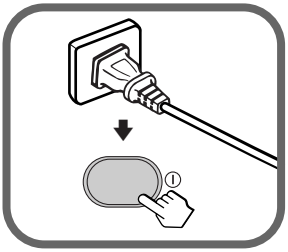


Step 2

Connect the antenna cable (not supplied) to ⊤ (antenna input) at the rear of the TV.

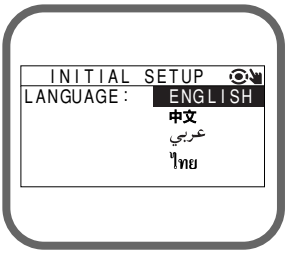
Tip

- You can also connect your TV to other optional components (see page 28).



Step 3

Plug in the power cord, then press ⏻ on the TV to turn it on.

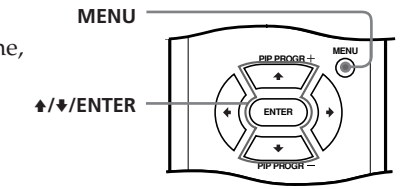


Step 4

Set up the TV by following the instructions of the "INITIAL SETUP"menu (see page 7).

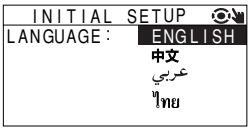
■ Setting up your TV (“INITIAL SETUP”)

When you turn on your TV for the first time, the “INITIAL SETUP” menu will appear. This menu allows you to change the menu language, adjust the picture position and preset the TV channels automatically.



1 Press ↑ or ↓ to select the desired menu language (e.g.,”ENGLISH”), then press ENTER.

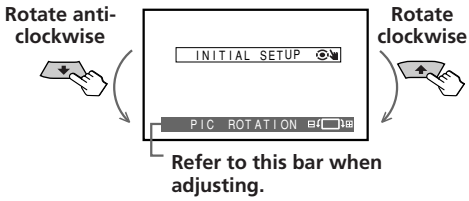
The selected menu language appears.



2 If the “PIC ROTATION” bar is slanted, press ↑ or ↓ to adjust it, then press ENTER.

If no adjustment is necessary, then press ENTER.

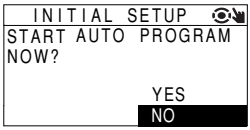
The ⊞ or ⊟ icon on the screen flashes while adjusting.

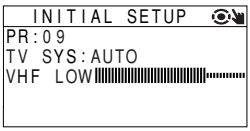


3 Press ↑ or ↓ to select “YES”, then press ENTER to preset the channels automatically (see page 25).

The screen will indicate automatic presetting is in progress.

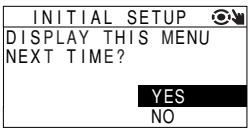
To skip automatic channel presetting, select “NO”, then press ENTER.





4 Press ↑ or ↓ to select “NO”, then press ENTER. The “INITIAL SETUP” menu will not appear again the next time you turn on the TV by pressing ⏻.

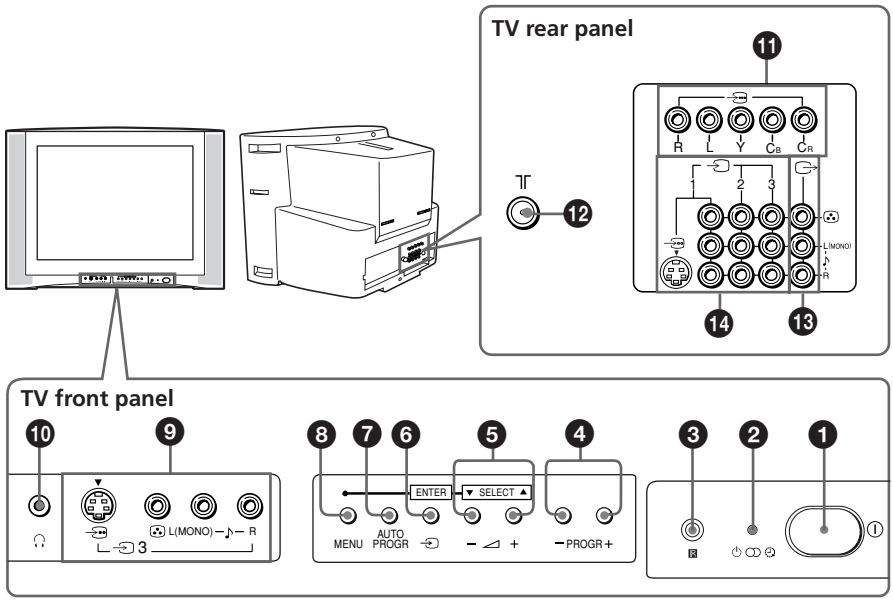
To allow this menu to appear again, select “YES”, then press ENTER.



Tips

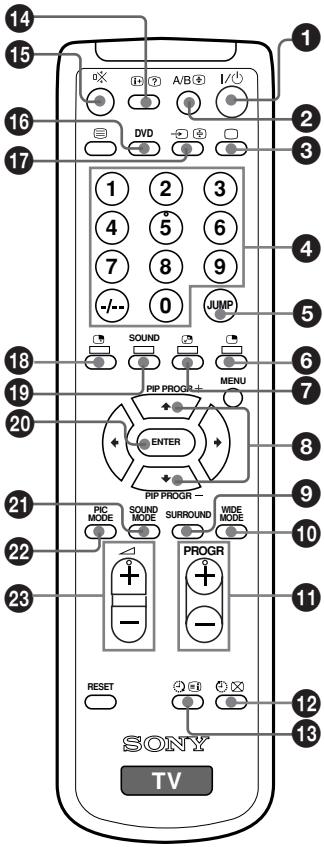
- You can immediately go to the end of the ”INITIAL SETUP” menu by pressing MENU.
- You can also set up your TV using the menu system (see page 16).

■ TV front and rear panels



Button/Terminal	Function	Page
❶ ⏻	Turn off or turn on the TV.	6
❷ ⏻	Standby indicator.	–
❷ 🕘	Wake Up indicator.	13
❷ ◯◯	Stereo/bilingual indicator.	14
❸	Remote control sensor.	–
❹ PROGR +/–	Select program number.	–
❺ +/–	Adjust volume.	–
❻	Select TV or video input.	–
❼ AUTO PROGR	Preset channels automatically.	–
Menu operations		
❺ SELECT ▼/▲	Select and adjust items.	18
❻ ENTER	Confirm selected items.	18
❽ MENU	Display or cancel the menu.	18
❾ 3	Video input terminal 3.	28
❿	Headphone jack.	–
⓫	Component video input terminal.	29
⓬	Antenna input terminal.	28
⓭	Monitor output terminal.	28
⓮ 1, 2, 3	Video input terminal 1, 2, 3.	28

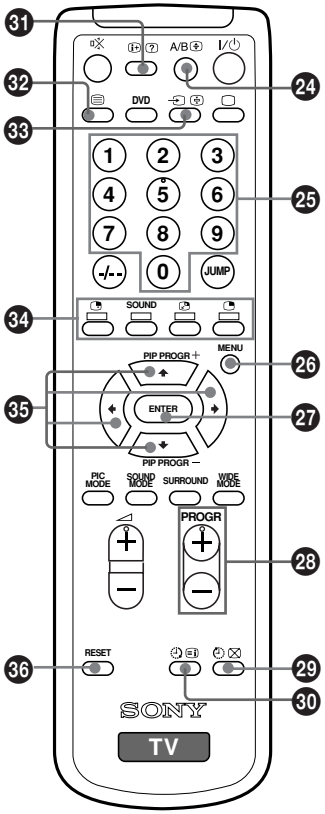
■ Remote control



Button	Function	Page
❶ I/⏻	Turn off temporarily or turn on the TV.	–
❸ ▭	Display the TV input.	–
❹ 0 – 9, -/--	Input numbers.	–
❺ JUMP	Jump to previous program number.	–
❾ SURROUND	Select surround mode.	12
❿ WIDE MODE	Select wide-mode (16:9).	12
⓫ PROGR +/–	Select program number.	–
⓮ i+	Display on-screen information.	–
⓯ 🔇	Mute the sound.	–
⓰ DVD	Select DVD input.	29
⓱ ⏎	Select TV or video input.	28
㉑ SOUND MODE	Select sound mode.	11
㉒ PIC MODE	Select picture mode.	11
㉓ 🔊 +/–	Adjust volume.	–
Timer operations		
⓬ ⏲	Set TV to turn off automatically.	13
⓭ ⏲	Set TV to turn on automatically.	13
PIP operations (yellow label)		
❻ ▣	Not function for your TV.	–
❼ ♪		
❽ PIP PROGR + / PIP PROGR –		
⓲ ▣		
⓳ SOUND		
⓴ ENTER		
Stereo/bilingual operations		
❷ A/B	Select stereo/bilingual mode.	14

continue

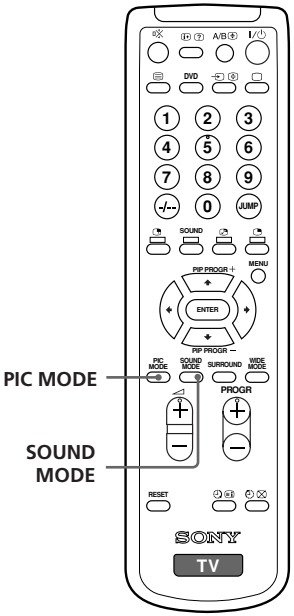
continued



Button	Function	Page
Menu operations		
26 MENU	Display or cancel the menu.	18
27 ENTER	Confirm selected items.	18
35 ↑, ↓, ←, →	Select and adjust items.	18
Teletext operations (green label)		
24 ⊕	Enlarge the Teletext display.	15
25 0 – 9	Input Teletext page number.	15
28 PROGR +/–	Display the next or previous page.	15
29 ⊠	Show TV screen while waiting for Teletext page.	15
30 ⓘ	Display Teletext service contents.	15
31 ?	Reveal concealed information.	15
32 ☰	Display Teletext broadcast.	15
33 ⊟	Stop Teletext display from scrolling.	15
34 ▬ (red, green, yellow, blue)	Access a FASTEXT menu.	15
36 RESET	Set TV to factory setting.	30

Selecting the picture and sound modes

You can select picture and sound modes and adjust the setting to your preference in the “PERSONAL” option.



Selecting the picture mode

Press PIC MODE to select the desired picture mode.

Select	To
“DYNAMIC”	view high contrast pictures.
“STANDARD”	view normal pictures.
“SOFT”	view mild pictures.
“PERSONAL”	receive the last adjusted picture setting from the “ADJUST” option in the “PICTURE” menu (see page 20).

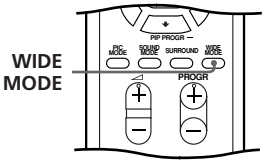
Selecting the sound mode

Press SOUND MODE to select the desired sound mode.

Select	To
“♪ DYNAMIC”	listen to dynamic and clear sound that emphasizes both the low and high tones.
“♪ DRAMA”	listen to sound that emphasizes voice and high tones.
“♪ SOFT”	listen to soft sound.
“♪ PERSONAL”	receive the last adjusted sound setting from the “ADJUST” option in the “SOUND” menu (see page 22).

Viewing the picture in wide mode

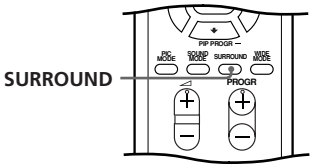
When receiving a wide-mode (16:9) signal, the picture will appear "squeezed" (compressed) on your screen. Use the WIDE MODE button to view the picture with the optimal effect.



Select	To
"ON"	view the picture in wide-mode (16:9).
"OFF"	cancel wide-mode (16:9).

Listening with surround sound

You can use the SURROUND button to listen to the sound effects of a concert hall or movie theater.



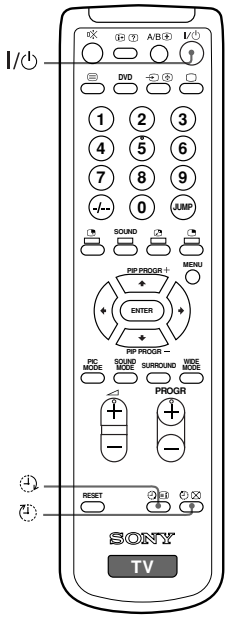
Select	To
"TruSurround"	listen to the surround sound that spreads out to the rear of a room.
"SIMULATED"	listen to monaural sound with a stereo-like effect.
"OFF"	cancel surround sound.

The surround of your TV is categorized as TruSurround.

TruSurround™ is a trademark of SRS Labs, Inc. SRS and the SRS symbol are registered trademarks of SRS Labs, Inc. in the United States and selected foreign countries. SRS and TruSurround are incorporated under license from SRS Labs, Inc. and are protected under United States Patent Nos. 4,748,669 and 4,841,572 with numerous additional issued and pending foreign patents.

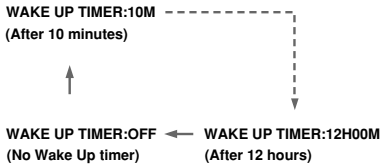
■ Setting the timers

You can set your TV to turn on and off automatically by using the Wake Up timer and Sleep timer respectively.



Setting the Wake Up timer

1 Press 🕘 until the desired period of time appears on the screen.



The Wake Up timer starts immediately after you have set it.

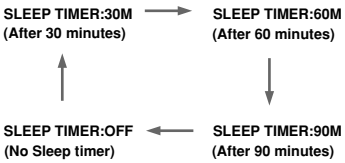
2 Select the program number or video input you want to wake up to.

3 Press I/⏻, or set the Sleep timer if you want the TV to turn off automatically.

The 🕘 indicator on the TV lights up orange when the TV goes into standby mode.

Setting the Sleep timer

Press 🕘 until the desired period of time appears on the screen.



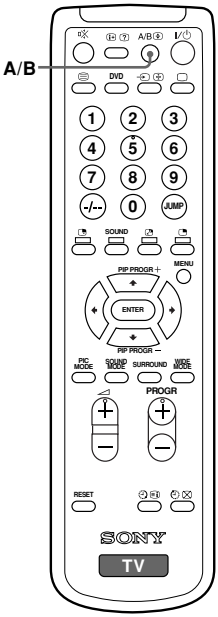
The Sleep timer starts immediately after you have set it.

Notes

- You can also cancel the Wake Up and Sleep timers by pressing ⏻ on the TV to turn off the TV.
- If no buttons are pressed for more than two hours after the TV is turned on using the Wake Up timer, the TV automatically goes into standby mode.

■ Enjoying stereo or bilingual programs

You can enjoy stereo sound or bilingual programs of NICAM and A2 stereo systems by using the A/B button.



When receiving a NICAM program

Broadcasting	On-screen display (Selected sound)
NICAM stereo	NICAM (Stereo sound) → MONO (Regular sound)
NICAM bilingual	NICAM MAIN (Main sound) → NICAM SUB (Sub sound) → MONO (Regular sound)
NICAM monaural	NICAM MAIN (Main sound) → MONO (Regular sound)

When receiving an A2 program

Broadcasting	On-screen display (Selected sound)
A2 stereo	STEREO (Stereo sound) → MONO (Regular sound)
A2 bilingual	MAIN (Main sound) → SUB (Sub sound)

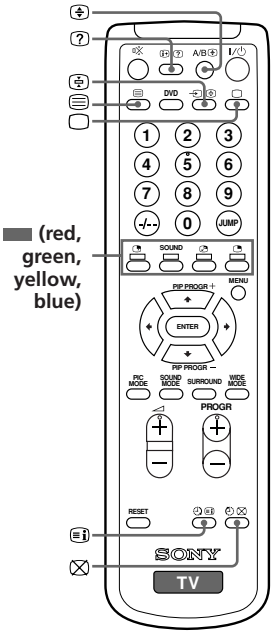
Notes

- If the stereo sound is noisy when receiving a stereo program, select "MONO". The sound becomes monaural, but the noise is reduced.
- If the sound is distorted when receiving a monaural program through ⅂⊢ (antenna input), press A/B repeatedly until "MONO" appears on the screen. To cancel the monaural sound setting, press A/B again until "AUTO" appears on the screen.

■ Viewing Teletext

Some TV stations broadcast an information service called Teletext which allows you to receive various information, such as stock market reports and news.

You can use the buttons on the remote to view Teletext.



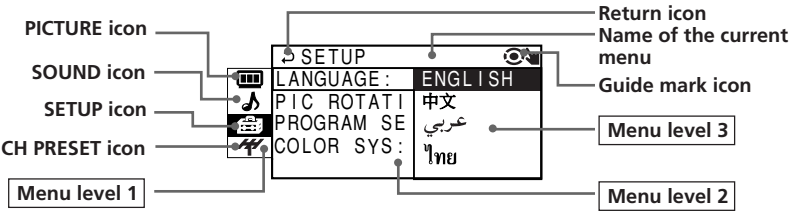
To	Do this
display a Teletext page on the TV picture	Press ☰. Each time you press ☰, the screen changes as follows: Teletext → Teletext and TV → TV. If there is no Teletext broadcast, "100" is displayed at the top left corner of the screen.
check the contents of a Teletext service	Press ⓘ. An overview of the Teletext contents, including page numbers, appears on the screen.
select a Teletext page	Press the number buttons to enter the three-digit page number of the desired Teletext page. If you make a mistake, reenter the correct page number. To access the next or previous page, press PROGR +/–.
hold (pause) a Teletext display	Press ⊕ to display the symbol "⊕" at the top left corner of the screen. To resume normal Teletext viewing, press ⊕ or ☰.
reveal concealed information (e.g., an answer to a quiz)	Press ?. To conceal the information, press the button again.
enlarge the Teletext display	Press ⊕. Each time you press ⊕, the Teletext display changes as follows: Enlarge upper half → Enlarge lower half → Normal size.
stand by for a Teletext page while watching a TV program	1 Enter the Teletext page number that you want to refer to, then press ⊠. 2 When the page number is displayed, press ☰ to show the text.
select a FASTEXT menu or the colored boxes	Press ■ (red, green, yellow and blue) that corresponds to the desired menu or page number.
turn off Teletext	Press ▭.

Note

- The FASTEXT feature can be used only when the FASTEXT broadcast is available.

■ Introducing the menu system

The MENU button lets you open a menu and change the settings of your TV. The following is an overview of the menu system.

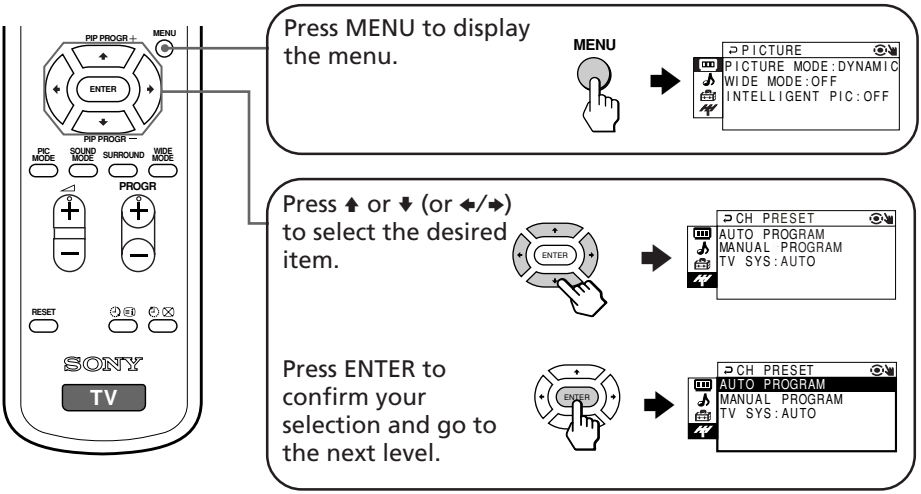


Level 1	Level 2	Level 3/Function	Page
"PICTURE"	"PICTURE MODE"	Select the picture mode: "DYNAMIC" → "STANDARD" → "SOFT" → "PERSONAL" → "ADJUST"	19
	"ADJUST"	Adjust the "PERSONAL" option: "PICTURE" → "COLOR" → "BRIGHT" → "HUE" → "SHARP"	
	"WIDE MODE"	Change the picture size: "ON" → "OFF"	
	"INTELLIGENT PIC"	Optimize picture quality: "ON" → "OFF"	
"SOUND"	"SOUND MODE"	Select the sound mode: "DYNAMIC" → "DRAMA" → "SOFT" → "PERSONAL" → "ADJUST"	21
	"ADJUST"	Adjust the "PERSONAL" option: "BASS" → "TREBLE" → "BALANCE" → "BBE"*	
	"SURROUND"	Select the "SURROUND" mode: "TruSurround" → "SIMULATED" → "OFF"	
	"INTELLIGENT VOL"	Adjust volume automatically: "ON" → "OFF"	
SETUP"	"LANGUAGE"	Change the menu language: "ENGLISH" → "中文"(Chinese) → "عربي"(Arabic) → "ไทย"(Thai)	23
	"PIC ROTATION"	Adjust the picture position.	
	"PROGRAM SETUP"	Adjust each program number settings.	
	"COLOR SYS"	Select the color system: "AUTO" → " PAL" → "SECAM" → "NTSC3.58" → "NTSC4.43"	

Level 1	Level 2	Level 3/Function	Page
"CH PRESET"	"AUTO PROGRAM"	Preset channels automatically.	25
	"MANUAL PROGRAM"	Preset channels manually.	
	"TV SYS"	Select the TV system: "B/G" → "I" → "D/K" → "M"	

* The BBE is manufactured by Sony Corporation under license from BBE Sound, Inc. It is covered by U.S. Patent No. 4,638,258 and No. 4,482,866. The word "BBE" and the BBE symbol are the trademarks of BBE Sound, Inc.

How to use the menu



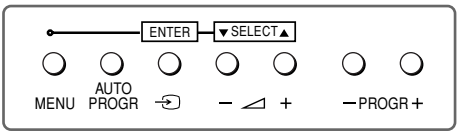
Other menu operations

To	Press
Adjust the setting value	↑, ↓, ← or →.
Move to the next/previous menu level	← or →.
Cancel the menu	MENU.

Tips

- If you want to exit from Menu level 2 to Menu level 1, press ↑ or ↓ until the return icon (⮌) is highlighted, then press ENTER.
- Some of the menu items can be operated directly using the remote buttons.
- The MENU, ENTER, and SELECT ▼/▲ buttons on the TV can also be used for the operations above.

Front of TV

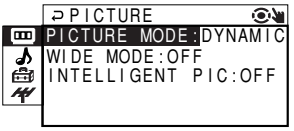


■ Changing the “PICTURE” setting

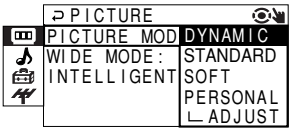
The “PICTURE” menu allows you to adjust the picture settings.

1 Press MENU.

2 Make sure the “PICTURE” icon (▣) is selected, then press ENTER.



3 Press ↑ or ↓ to select the desired item (e.g., “PICTURE MODE”), then press ENTER.



Select	To
“PICTURE MODE”	choose either “DYNAMIC”, “STANDARD”, “SOFT”, “PERSONAL”*, or “ADJUST” (see page 11).
“WIDE MODE”	choose either “ON” or “OFF” (see page 12).
“INTELLIGENT PIC”	optimize picture quality. Press ↑ or ↓ to select “ON”, then press ENTER. To cancel, select “OFF”, then press ENTER.

* When the “PERSONAL” mode is selected, you can receive the last adjusted picture settings from the “ADJUST” option (see page 20).

continue

continued

Adjusting the "ADJUST" items under "PICTURE MODE"

1 Press ↑ or ↓ to select the desired item (e.g.,"COLOR"), then press ENTER.

2 Adjust the value according to the following table, then press ENTER.

For	Press ↓ or ← to	Press ↑ or → to
"PICTURE"	decrease picture contrast.	increase picture contrast.
"COLOR"	decrease color intensity.	increase color intensity.
"BRIGHT"	darken the picture.	brighten the picture.
"HUE"	increase red picture tones.	increase green picture tones.
"SHARP"	soften the picture.	sharpen the picture.

3 Repeat the above steps to adjust other items.

The adjusted settings will be received when you select "PERSONAL".

Notes

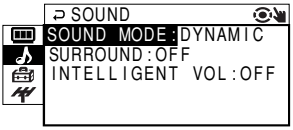
- "HUE" can be adjusted for the NTSC color system only.
- Reducing sharpness ("SHARP") can also reduce picture noise.

■ Changing the “SOUND” setting

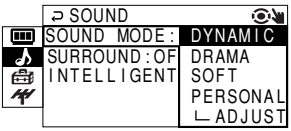
The “SOUND” menu allows you to adjust the sound settings.

1 Press MENU.

2 Press ↑ or ↓ to select the “SOUND” icon (♪), then press ENTER.



3 Press ↑ or ↓ to select the desired item (e.g., “SOUND MODE”), then press ENTER.

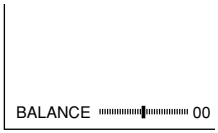


Select	To
“SOUND MODE”	choose either “DYNAMIC”, “DRAMA”, “SOFT”, “PERSONAL”*, or “ADJUST” (see page 11).
“SURROUND”	choose either “TruSurround”, “SIMULATED” or “OFF” (see page 12).
“INTELLIGENT VOL”	adjust the volume of all program numbers and video inputs automatically. Press ↑ or ↓ to select “ON”, then press ENTER. To cancel, select “OFF”, then press ENTER.

* When the “PERSONAL” mode is selected, you can receive the last adjusted sound settings from the “ADJUST” option (see page 22).

Adjusting the “ADJUST” items under “SOUND MODE”

1 Press ↑ or ↓ to select the desired item (e.g., “BALANCE”), then press ENTER.



2 Adjust the value according to the following table, then press ENTER .

For	Press ↓ or ← to	Press ↑ or → to
“BASS”	decrease the bass.	increase the bass.
“TREBLE”	decrease the treble.	increase the treble.
“BALANCE”	increase the left speaker’s volume.	increase the right speaker’s volume.
“BBE”	select “HIGH” for higher enhancement of sound clarity; select “LOW” for lower enhancement of sound clarity; select “OFF” to cancel BBE sound.	

3 Repeat the above steps to adjust other items.

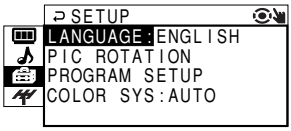
The adjusted settings will be received when you select “PERSONAL”.

■ Changing the “SETUP” setting

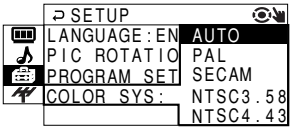
The “SETUP” menu allows you to change the menu language, adjust the picture position, set up your program numbers and select the color system.

1 Press MENU.

2 Press ↑ or ↓ to select the “SETUP” icon (🧰), then press ENTER.



3 Press ↑ or ↓ to select the desired item (e.g., “COLOR SYS”), then press ENTER.

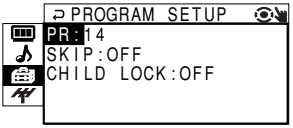


Select	To
“LANGUAGE”	change the menu language. Press ↑ or ↓ to select either “ENGLISH”, “中文” (Chinese), “ عربي ” (Arabic), or “ ไทย ” (Thai) then press ENTER. The selected menu language appears.
“PIC ROTATION”	adjust the picture position when it is not aligned with the TV screen. Press ↑ , → , ↓ or ← to adjust the picture position, then press ENTER.
“PROGRAM SETUP”	adjust each channel settings (see **Adjusting each program number settings (“PROGRAM SETUP”)** on page 24).
“COLOR SYS”	select the color system. Normally, set this to “AUTO”.

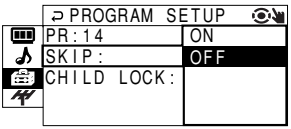
Adjusting each program number settings (“PROGRAM SETUP”)

1 Select “PROGRAM SETUP” from the “SETUP” menu.

2 Select “PR” and press ENTER. Press ↑ or ↓ to select the desired program number you want to adjust, then press ENTER.



3 Press ↑ or ↓ to select the desired item (e.g., “SKIP”), then press ENTER.



Select	To
“PR”	select the desired program number.
“SKIP”	skip unwanted or unused program number. Press ↑ or ↓ to select “ON”, then press ENTER. To cancel, select “OFF”, then press ENTER.
“CHILD LOCK”	prevent children from watching this selected program number. Press ↑ or ↓ to select “ON”, then press ENTER. The lock symbol (🔒) appears on the screen. To cancel, select “OFF”, then press ENTER. If you preset a locked program number, that program number will be unlocked automatically.

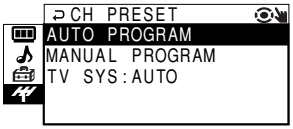
4 To continue adjusting other program numbers, press ↑ or ↓ to select “PR”, then repeat step 2 and 3.

■ Changing the Channel Preset (“CH PRESET”) setting

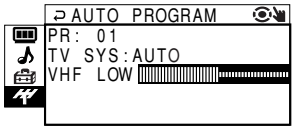
The “CH PRESET” menu allows you to preset channels automatically, manually preset channels and select the TV system.

1 Press MENU.

2 Press ↑ or ↓ to select the “CH PRESET” icon (), then press ENTER.



3 Press ↑ or ↓ to select the desired item (e.g., “AUTO PROGRAM”), then press ENTER.

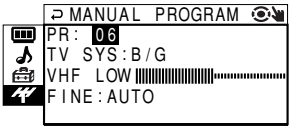


Select	To
“AUTO PROGRAM”	preset channels automatically.
“MANUAL PROGRAM”	manually preset desired channels and channels that cannot be preset automatically (see **Presetting channels manually** on page 26).
“TV SYS”	select the TV system. Press ↑ or ↓ to select either “B/G”, “I”, “D/K” or “M”, then press ENTER.

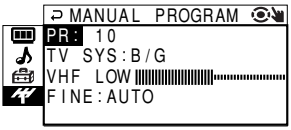
Presetting channels manually

1 After selecting "MANUAL PROGRAM", select the program number to which you want to preset a channel.

(1) Make sure "PR" is selected, then press ENTER.

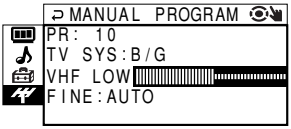


(2) Press ↑ or ↓ until the program number you want to preset (e.g., program number "10") appears on the menu, then press ENTER.

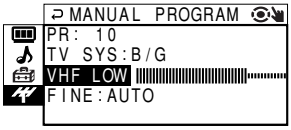


2 Select the desired channel.

(1) Make sure either "VHF LOW", "VHF HIGH", or "UHF" is selected, then press ENTER.

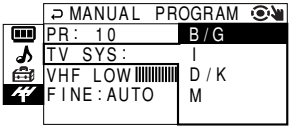


(2) Press ↑ or ↓ until the desired channel's broadcast appears on the TV screen, then press ENTER.

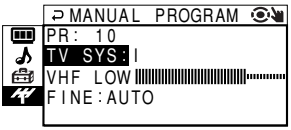


3 If the sound of the desired channel is abnormal, select the appropriate TV system.

(1) Press ↑ or ↓ to select "TV SYS", then press ENTER.



(2) Press ↑ or ↓ until the sound becomes normal, then press ENTER.

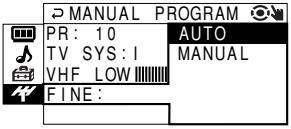


Tip

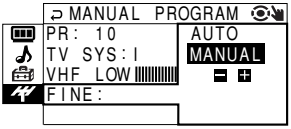
- You can also select the program number with the PROGR +/– or number buttons.

4 If you are not satisfied with the picture and sound quality, you may be able to improve them by using the "FINE" tuning feature.

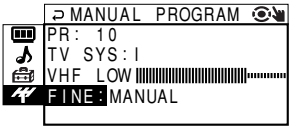
(1) Press ↑ or ↓ to select "FINE", then press ENTER.



(2) Press ↑ or ↓ to select "MANUAL", then press ENTER.



(3) Press ↑, ↓, ← or → until the picture and sound quality are optimal, then press ENTER.
The + or – icon on the menu flashes while tuning.

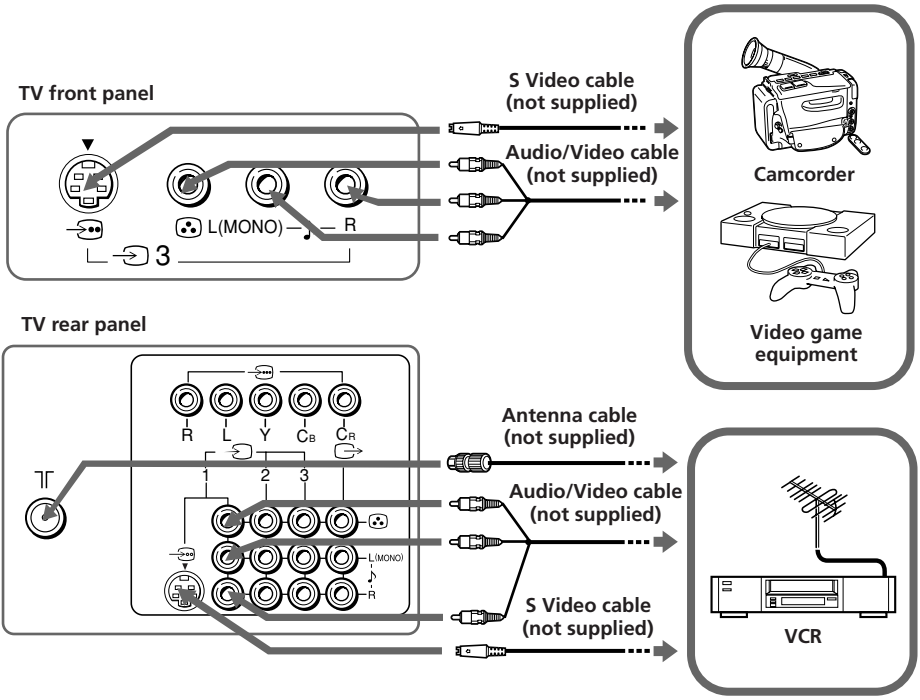


Note

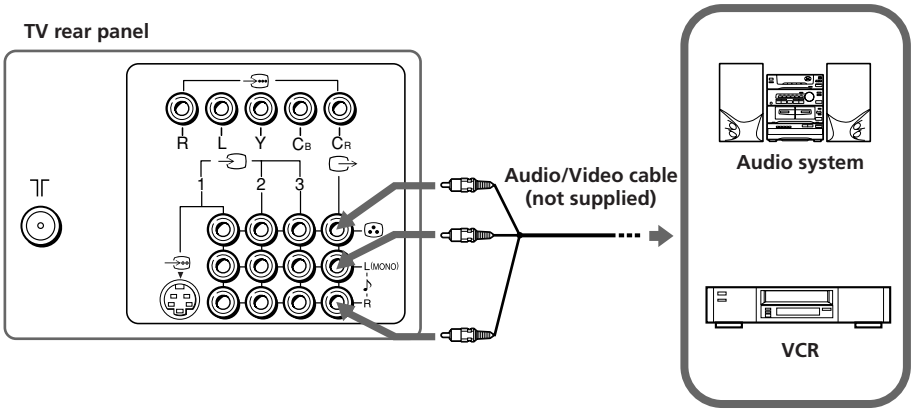
- If you connect a VCR to ⅂ (antenna input), preset the signal output from the VCR to the program number 0 on the TV.

■ Connecting optional components

Connecting to the video input terminal ( )



Connecting to the monitor output terminal ( )

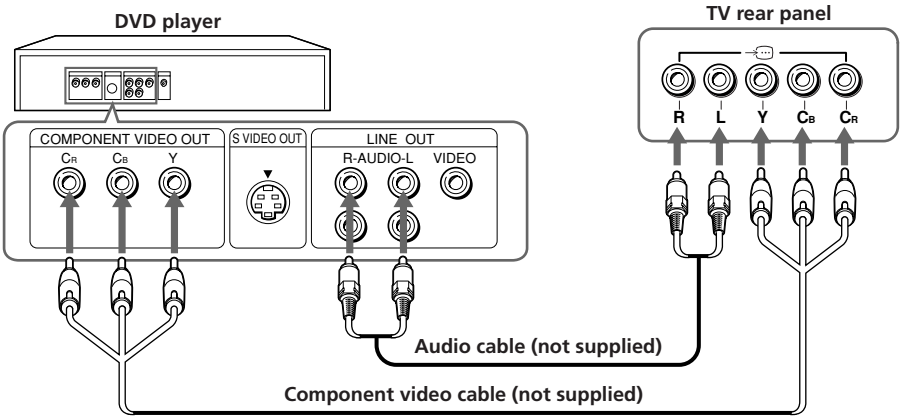


Connecting a DVD player to the component video input terminal ( )

1 Using an audio cable, connect R and L under (component video input) on your TV to the LINE OUT, AUDIO R and L output connectors on your DVD player.

2 Using a component video cable, connect Y, C_B, and C_R under (component video input) on your TV to the COMPONENT VIDEO OUT Y, C_B, and C_R output connectors on your DVD player.

3 Press DVD on the remote to watch the (component video input) and "DVD" will appear on your screen.



Notes

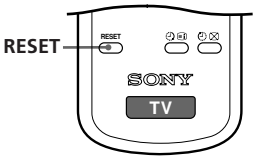
- If your DVD player can ouput interlace and progressive mode signals, select the interlace output when connecting to (component video input) on your TV. Your TV can receive either 525i/60Hz or 625i/50Hz interlace signals.
- Some DVD player terminals may be labeled differently:

Connect	To (on the DVD player)
Y (green)	Y
C_B (blue)	C_B, P_B, C_b or B-Y
C_R (red)	C_R, P_R, C_r or R-Y

- When both (S video) and (video) for 1 or 3 are connected at the same time, (S video) is automatically selected. To view (video), disconnect the S video cable.
- If you select "DVD" on your TV screen, the signal from the (monitor output) jacks will not be output properly. This does not indicate a malfunction.

Troubleshooting

If you have any problem while viewing your TV, you can either use the Reset function or check the Troubleshooting guide below. If the problem persists, contact your Sony dealer.

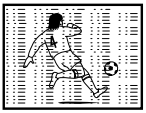


Reset function

Press the RESET button on your remote control. Your TV will go blank for about half a second then the picture will reappear with "RESET" displayed on your TV screen for about 10 seconds.

Pressing RESET will set your TV to the factory setting, but certain problems may be solved.

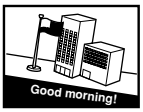
Troubleshooting guide

Symptom	Possible cause	Solutions	Page
Snowy picture  **Noisy sound**	• The connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR and at the wall.	28
	• The antenna setup is inappropriate.	• Check the antenna setup. Contact a Sony dealer for advice.	–
	• Channel presetting is inappropriate or incomplete.	• Display the "CH PRESET" menu and select "MANUAL PROGRAM" to preset the channel again.	26
	• Signal transmission is low.	• Try using a booster.	–
Distorted picture **Noisy sound**	• Broadcast signals are too strong.	• Turn off or disconnect the booster if it is in use.	–
Good picture **Noisy sound**	• The TV system setting is inappropriate.	• Display the "CH PRESET" menu and select the appropriate TV system ("TV SYS").	26

Symptom	Possible cause	Solutions	Page
No picture **No sound** 	• The power cord, antenna or VCR is not connected.	• Check the power cord, antenna and VCR connections.	28
	• The TV is not turned on.	• Press I/⏻ (power). • Press ⏻ (main power) on the TV to turn off the TV for about five seconds, then turn it on again.	9 8
Good picture **No sound** 	• The volume level is too low.	• Press + to increase the volume level.	9
	• The sound is muted.	• Press 🔇 to cancel the muting.	9
Dotted lines or stripes 	• There is local interference from cars, neon signs, hair dryers, power generators, etc.	• Do not use a hair dryer or other equipment near the TV. • Check the antenna setup. Contact a Sony dealer for advice.	– –
Double images or "ghosts" 	• Broadcast signals are reflected by nearby mountains or buildings.	• Use a highly directional antenna. • Use the fine tuning ("FINE") function.	– 27
	• The antenna setup is inappropriate.	• Check the antenna setup. Contact a Sony dealer for advice.	–
	• Use of a booster is inappropriate.	• Turn off or disconnect the booster if it is in use.	–
No color 	• The color level setting is too low.	• Display the "PICTURE" menu and select "ADJUST" of "PICTURE MODE", then adjust the "COLOR" level.	20
	• The color system setting is inappropriate.	• Display the "SETUP" menu and check the color system ("COLOR SYS") setting (usually set this to "AUTO").	23
	• The antenna setup is inappropriate.	• Check the antenna setup. Contact a Sony dealer for advice.	–

continue

continued

Symptom	Possible cause	Solutions	Page
Picture slant 	• The magnetic disturbance from external speakers or other equipment, or the direction of the earth's magnetic field may affect the TV.	• Keep external speakers or other electrical equipment away from the TV. • Display the "SETUP" menu and adjust "PIC ROTATION" so that the picture position is optimal.	– 23
Abnormal color patches 	• The magnetic disturbance from external speakers or other equipment, or the direction of the earth's magnetic field may affect the TV.	• Keep external speakers or other equipment away from the TV. Do not move the TV while the TV is turned on. Press ⏻ (main power) on the TV to turn off the TV for about 15 minutes, then turn it on again to demagnetize the TV.	–
TV cannot receive stereo broadcast sound.	• The stereo reception setting is inappropriate.	• Press A/B until "AUTO" appears on the screen.	14
or	• The connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR and on the wall.	28
Stereo broadcast sound switches on and off or is distorted.	• The antenna setup is inappropriate.	• Check the antenna setup. Contact a Sony dealer for advice.	–
"100" appears at the top of the screen and there is no Teletext display.	• The channel carries no Teletext broadcast.	—	15
Teletext display is incomplete (snowy picture or double images).	• Connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR, and at the wall.	28
	• The antenna setup is inappropriate.	• Check the antenna setup. Contact a Sony dealer for advice.	–
	• Signal transmission is too low.	• Try using a booster. • Use the fine tuning ("FINE") function.	– 27
The ⏻ (standby) indicator on your TV flashes red several times after every three seconds.	• Your TV's self-diagnosis function indicates the possible problems.	• Count the number of times the ⏻ (standby) indicator flashes. Press ⏻ (main power) to turn off your TV. Contact your nearest Sony service center.	–

Symptom	Possible cause	Solutions	Page
TV cabinet creaks.	• Changes in room temperature sometimes make the TV cabinet expand or contract, causing a noise. This does not indicate a malfunction.	—	–
A small "boom" sound is heard when the TV is turned on.	• The TV's demagnetizing function is working. This does not indicate a malfunction.	—	–

■ Specifications

	KV-AR29M31	KV-AR25M31	Note
Power requirements	220-240 VAC, 50/60 Hz		
Power consumption (W)	Indicated on the rear of the TV		
Television system	B/G, I, D/K, M		
Color system	PAL, PAL 60, SECAM, NTSC3.58, NTSC4.43		
Stereo/Bilingual system	NICAM Stereo/Bilingual B/G, I; A2 Stereo/Bilingual B/G		
Teletext language	English, Arabic, French		
Channel coverage **B/G**	VHF : E2 to E12 UHF : E21 to E69 CATV : S01 to S03, S1 to S41		
	VHF : 0 to 12, 5A, 19A UHF : 28 to 69 CATV : S01 to S03, S1 to S41		Australia only
	VHF : 1 to 11 UHF : 21 to 69 CATV : S01 to S03, S1 to S41		New Zealand only
I	UHF : B21 to B68 CATV : S01 to S03, S1 to S41		
D/K	VHF : C1 to C12, R1 to R12 UHF : C13 to C57, R21 to R60 CATV : S01 to S03, S1 to S41, Z1 to Z39		
M	VHF : A2 to A13 UHF : A14 to A79 CATV : A-8 to A-2, A to W+4, W+6 to W+84		
(Antenna)	75-ohm external terminal		
Audio output (Speaker)	8W + 8W		
Number of terminal **(Video)**	Input: 4* Output: 1	Phono jacks; 1 Vp-p, 75 ohms	* Three input lines available
(Audio)	Input: 4* Output: 1	Phono jacks; 500 mVrms	* Three input lines available
(S Video)	Input: 2	Y: 1 Vp-p, 75 ohms, unbalanced, sync negative C: 0.286 Vp-p, 75 ohms	
(Component Video)	Input: 1	Phono jacks; Y: 1 Vp-p, 75 ohms, sync negative C_B: 0.7 Vp-p, 75 ohms C_R: 0.7 Vp-p, 75 ohms Audio: 500 mVrms	
(Headphone)	Output: 1	Stereo minijack	
Picture tube	29 in.	25 in.	
Tube size (cm)	72	64	Measured diagonally
Screen size (cm)	68	60	Measured diagonally
Dimensions (w/h/d, mm)	765 × 578 × 502	650 × 517 × 496	
Mass (kg)	49	39	

Design and specifications are subject to change without notice.

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